U.S. Department of Energy
Office of River Protection
Mr. R. J. Schepens
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CCN: 066492

AUG 2 5 2003

Dear Mr. Schepens:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL FOR INFORMATION - AUTHORIZATION BASIS CHANGE NOTICES

Bechtel National, Inc. (BNI) is submitting fifteen Authorization Basis Change Notices (ABCN) in accordance with BNI-approved procedure 24590-WTP-GPP-SREG-002, Revision 5, *Authorization Basis Maintenance,* to the U.S. Department of Energy, Office of River Protection, and the Safety Regulation Division (OSR) for information (attached). The contractor-approved ABCNs listed in Attachment 1 are a result of the Hanford Tank Waste Treatment and Immobilization Plant's design evolution changes.

Electronic copies of the attached ABCNs are provided for the OSR's information and use.

Please contact Mr. Bill Spezialetti at 371-3074 for any questions or comments.

Very truly yours,

J. P. Henschel
Project Director

TR/slr

CCN: 066492

Attachments: 1) Authorization Basis Change Notice List
2) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-017, Revision 0
3) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-121, Revision 0
4) Authorization Basis Change Notice 24590-WTP- SE-ENS-03-165, Revision 0
5) Authorization Basis Change Notice 24590-WTP- SE-ENS-03-206, Revision 0
6) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-219, Revision 1
7) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-297, Revision 0
8) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-307, Revision 0
9) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-346, Revision 0
10) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-433, Revision 0
11) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-449, Revision 0
12) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-463, Revision 0
13) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-479, Revision 0
14) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-509, Revision 0
15) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-528, Revision 0
16) Authorization Basis Change Notice 24590-WTP-SE-ENS-03-529, Revision 0

cc:

Allen, B. T. w/o	WTP	MS4-B1
Armstead, J. M. w/o	WTP	MS14-3B
Barr, R. C. w/a	OSR	H6-60
Beranek, F. w/o	WTP	MS-A1
DOE Correspondence Control w/a	ORP	H6-60
Duncan, G. w/o	WTP	MS4-C2
Ensign, K. R. w/o	ORP	H6-60
Erickson, L. w/o	ORP	H6-60
Eschenberg, J. w/a	ORP	H6-60
Garrett, R. L. w/o	WTP	MS4-B1
Hamel, W. F. w/o	ORP	H6-60
Hanson, A. J. w/o	ORP	H6-60
Klein, D. A. w/o	WTP	MS-A1
PDC w/a	WTP	MS11-B
Ryan, T. B. w/Attachment 1 only	WTP	MS-B1
Shell, G. T. w/o	WTP	MS14-4B
Short, J. J. w/o	ORP	H6-60
Spezialetti, W. R. w/Attachment 1 only	WTP	MS-B1
Taylor, W. J. w/a	ORP	H6-60
Tosetti, R. J. w/o	WTP	MS-A2

Attachment 1

Authorization Basis Change Notice List

Authorization Basis Change Notice List

Attch #	ABCN #	ABCN Title	Affected Document	
2	24590-WTP-SE-ENS-03-017, Revision 0	Safety Evaluation for LAW Offgas System Description 24590-LAW-3YD-LOP-00001	24590-WTP-PSAR-ESH-01-001-03, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific Information
3	24590-WTP-SE-ENS-03-121, Revision 0	Delete Appendices B, C, and D in PSAR Update	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
			24590-WTP-PSAR-ESH-01-002-03, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific Information
			24590-WTP-PSAR-ESH-01-002-04, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information
4	24590-WTP-SE-ENS-03-165, Revision 0	Safety Evaluation for the CNP Forced Circulation Design	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
5	24590-WTP-SE-ENS-03-206, Revision 0	Changes incorporated into the RDP system PFD (24590-PTF-M5-V17T-00020)	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
6	24590-WTP-SE-ENS-03-219, Revision 1	PTF-P&IDs- Floorboxes and Wallboxes Deletion (Replaced with Shadow Shielding)	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
7	24590-WTP-SE-ENS-03-297, Revision 0	Removal of the inline radiation monitor and associated vortex flow and differential pressure instrumentation and valves from the pump discharge	24590-WTP-PSAR-ESH-01-002-05, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; BOF Facility Specific Information
8	24590-WTP-SE-ENS-03-307, Revision 0	Design changes/improvements to the PWD & RLD Systems	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
9	24590-WTP-SE -ENS-03-346, Revision 0	Cesium Nitric Acid Recovery Utility Services - PSA Rack	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
10	24590-WTP-SE -ENS-03-433, Revision 0	HLW Transfer Hatches, Hatch Drives, Hatch Pushrod Assemblies, and Floor Penetration Liners	24590-WTP-PSAR-ESH-01-002-04, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information
11	24590-WTP-SE -ENS-03-449, Revision 0	Roles and Responsibilities of the Radiological Safety Manager listed in the PSAR	24590-WTP-PSAR-ESH-01-002-01, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; General Information

Attch #	ABCN #	ABCN Title	Affected Document	
12	24590-WTP-SE-ENS-03-463, Revision 0	Changes to the HLW Annex, Glass Former Feed room and room classifications	24590-WTP-PSAR-ESH-01-002-04, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information
13	24590-WTP-SE-ENS-03-479, Revision 0	PSAR Volume I Chapter 17 2003 Update	24590-WTP-PSAR-ESH-01-002-01, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; General Information
14	24590-WTP-SE-ENS-03-509, Revision 0	P&ID-PTF Cesium Nitric Acid Recovery Process System Evaporator Vessel	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
15	24590-WTP-SE-ENS-03-528, Revision 0	Incorporate DCA (24590-PTF-DCA-M-03-021, Rev. 0) for the PWD System	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information
16	24590-WTP-SE-ENS-03-529, Revision 0	Process Flow Diagram HLW Vitrification Pulse Jet Ventilation Treatment (System PJV)	24590-WTP-PSAR-ESH-01-002-02, Revision 0	Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information

Attachment 2

Authorization Basis Change Notice 24590-WTP-SE -ENS-03-017, Revision 0

Safety Evaluation For Design

JE 8/7/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: ABCN for LAW Offgas System Description 24590-LAW-3YD-LOP-00001	

Description of design change:

This document is being issued as Revision 0. As such, the entire document was evaluated for safety and consistency with the Authorization Basis (AB). The following changes are noted between the Offgas System Description and the AB:

1. Moved the injection point for the air and steam from the offgas line near the melter exhaust to the film cooler. This air is injected to control non-condensable gases and the vacuum level. (PSAR Section: 2.5.3.1)
2. Removed the interlock to stop or prevent feeding the melter on loss of cooling steam or air flow to the film coolers. The system description does not identify this as a function provided by the LAW Melter Offgas System. (PSAR Section: 2.5.3.3)
3. Removed the interlock to stop or prevent feeding the melter on detection of high nitrous oxides (NOx) downstream of the selective catalytic reduction (SCR) units. The system description does not identify this as a function provided by the LAW Melter Offgas System. (PSAR Section: 2.5.3.3)
4. Added high radiation monitoring on the sample filter downstream of the HEPAs.
5. Removed high differential temperature monitoring across the catalytic oxidizer/reducer unit. The system description does not identify this as a function provided by the LAW Melter Offgas System. (PSAR Section: 2.5.4.2.3)
6. Exiting offgas temperature from the melter is identified as a range of 400 °C to 600 °C which is changed from 400 °C. (PSAR Sections: 3.4.1.1.1, 3.4.1.1.2.6)
7. Operating philosophy of the ITS (SDS) HEPA filter preheaters changed from one online with the second on standby to having both operational at 50% capacity. (PSAR Sections: 2.5.4.2.1, 4.4.2.5)
8. The ITS (SDS) interlock of the chilled water on detection of high level in the submerged bed scrubber was changed to trip the supply valves to the cooling coils rather than tripping the circulation pumps (SCR-LINST/N0052). (PSAR Sections: Table 3-10, 4.4.3.1, 4.4.3.3, 4.4.3.4, 4.4.3.5, 4.4.3.6, Table 4-2, 5.5.2, Appendix A)
9. Removed the ITS (SDS) control to monitor the WESP power supply and alarm if a malfunction is detected (SCR-LINST/N0046). The safety function to prevent plugging the HEPA filters is performed by the ITS (SDS) control to stop feed to the melters on detection of high differential pressure across the first bank of HEPA filters (SCR-LINST/N0061). (PSAR Sections: Table 3-10, 4.4.4.1, 4.4.4.3, 4.4.4.4, 4.4.4.5, 4.4.4.6, Table 4-2, 5.5.3, Appendix A)
10. Added an ITS (SDS) interlock to stop the injection of water to the film coolers on detection of high melter plenum pressure. (PSAR Sections: 2.5.4.1.1, 4.4.6.1, 4.4.6.3, 4.4.6.5, 4.4.6.6, Table 4-2, 5.5.5, Appendix A)
11. Removed the ITS (SDS) control to isolate the melter pressure control air at a predetermined melter pressure (SCR-LINST/N0065). The ITS (SDS) control now isolates the flow of plant service air to the film coolers on high melter plenum pressure (SCR-LINST/N0066). (PSAR Sections: Table 3-10, 4.4.6.1, 4.4.6.3, 4.4.6.5, Table 4-2, 5.5.5, Appendix A)
12. Update PSAR to reflect 24 HEPA filters in the melter offgas treatment system. (PSAR Sections: 3.4.2.1.2.1, Table 3-16, Table 3-17)

Additional discrepancies with the PSAR reflected by the Design Document Evaluated:

a. Added the interlock to stop or prevent feeding the melter on high differential pressure across the first bank of HEPA filters. This is an ITS (SDS) control that was evaluated in 24590-WTP-ABCN-ENS-02-008. This identifies an additional AB section affected by 24590-WTP-ABCN-ENS-02-008 and does not require further screening in this evaluation. (PSAR Section: 2.5.3.3)

b. Mercury was identified as a potential emissions concern. As such, activated carbon adsorption beds for mercury mitigation were added to the offgas treatment system. Additionally, these carbon adsorption beds will remove acid gases that could poison the catalyst beds and will remove iodine from the offgas stream. The ISM evaluation of the mercury abatement system is not complete at this time. However, the system description identifies the design of the mercury adsorbers as being conceptual, pending receipt of vendor recommendations, and should not be used for procurement or construction. This is taken to be the equivalent of a hold on the

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

Description of design change:

mercury absorbers in the system description. When the design of the mercury adsorbers has developed to the point that the ongoing ISM process can be progressed, any potential controls will be identified and addressed prior to this hold being removed from the system description. At that time, a safety evaluation covering this component will be completed.

c. The safety case requirements were renumbered in an attempt to clarify which functional group the requirements apply to. Several of the safety case requirements associated with the melter offgas system were modified for grammatical changes or changes in terminology but do not change the intent or meaning of the SCR (see attachment 1 of this evaluation). Based on the direction of 24590-WTP-GPP-SREG-002, Rev. 5, changes to room numbers and equipment names do not require further screening in part 2 of the safety evaluation for design. Changes to the SCR label and/or changes in terminology will not be screened further, based on this direction. (PSAR Sections: Table 3-10, Appendix A).

d. Moved the Melter Offgas Exhausters from the Secondary Offgas Room to separate rooms for each exhauster. (PSAR Section: 2.5.4.2.2). This fulfills the commitment that the melter offgas exhausters, emergency power, and control systems are located in separate fire areas from each other and from the critical components of the C5 system, thereby preventing a common cause failure mechanism for the offgas system. This commitment was made in PCAR/PSAR question responses (i.e., LAW-PCAR-051, LAW-PSAR-008, LAW-PSAR-009, etc.) and does not require further evaluation.

Reason for design change:

1. The injection point for the air and steam was moved from the offgas line near the melter exhaust to the film cooler due to layout issues. Resolution of these issues resulted in simplifying the piping layout. (Design Evolution)
2. Loss of cooling steam or air flow to the film coolers does not have immediate Important to Safety consequences requiring an automated interlock to stop or prevent feeding the melter. However, this situation may lead to a process decision to manually initiate stopping feed to the melters.
3. High nitrogen oxides downstream of the SCR units does not have Important to Safety consequences requiring an automated interlock to stop or prevent feeding the melter. However, this situation may lead to a process decision to stop feed to the melters. The Design Basis Event representing offgas releases does not rely on the NOx removal capabilities of the offgas treatment system, but rather credits confinement for protection of the Facility Worker and an elevated release from the exhaust stack for protection of the Co-located Worker.
4. Based on the expected low radiation levels in the offgas system, there is the possibility that reduced filter efficiency would not be detected by measuring the radiation levels in the offgas stream. However, enough material may be accumulated on the sample filters downstream of the HEPAs to detect this condition.
5. This is an error in the PSAR. Differential temperature across the catalytic oxidizer/reducer unit was never intended to be monitored. High temperature differential across the catalytic oxidizer/reducer unit does not have safety consequences requiring alarms, controls, or interlocks.
6. The offgas exiting the melter cannot be held to an exact temperature. The temperature of the offgas from the operating pilot melter has ranged from 400 °C to approximately 600 °C. (The LAW Melter Offgas Release DBE will be updated to include a range with an upper bound of 600 °C in the exiting temperature of the offgas from the melter.)
7. By having both HEPA filter preheaters online at 50% capacity the temperature increase across the heaters will be greater than 20 °C. If one of these heaters fails, a minimum temperature increase of 10 °C is still achieved without a time delay to switch to the standby preheater.
8. Tripping the circulation pumps on detection of high level in one of the SBS columns would shut down the chilled water supply to all SBS jackets and coils and all SBS Condensate Vessel jackets resulting in potential upset conditions. Because of this, it was determined that tripping the supply valve to the cooling coil of the SBS in which the high level was detected is a better control strategy.
9. WESP efficiency does not have immediate effects on the HEPA filters; therefore, control of the WESP electrode power supplies is not essential. Upon further evaluation of the WESP power supply it was determined that a

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

Reason for design change:

malfunction might not be readily detectable and that the primary concern, loading the HEPA filters, would be best detected by monitoring the differential pressure across the first bank of HEPA filters. High differential pressure across the filters will interlock melter feed. This control is related to the removal of the SBS temperature/melter feed interlock in favor of interlocking melter feed to high differential pressure across the HEPA filters (See 24590-WTP-ABCN-ENS-02-008, CCN # 035683).

10. Addition of demineralized water to the melter will result in additional steam carryover to the offgas system and increased melter plenum pressure. If this occurred during periods of high melter plenum pressure this would prolong the duration of melter plenum pressure above the normal operating range.
11. Isolation of the melter pressure control air was based on a previous design when melter pressure control air was supplied by instrument air. Melter pressure control air is now supplied by plant service air and connected along with injection air to a common plant service air header to the melter. Air inputs to the film cooler have already been identified as requiring isolation at a predetermined melter pressure (i.e., SCR-LINST/N0066).
12. The Seismic Design Basis Event analyzed the radiological consequences from crushing 12 filters in the melter offgas/vessel ventilation system. There are two trains of melter offgas/vessel ventilation HEPA filters each containing 12 filters for a total of 24 filters.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The changes identified by this system description revision do not modify or delete a standard prescribed in the Safety Requirements Document Volume II.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: For the purpose of answering this question, changes to the description of an SSC in the PSAR are viewed as a "changes", even though the location, function, or reliability of the described SSC may not have been impacted. Item 1 changes the location of an SSC described in chapter 2 of the PSAR by moving the injection point for the air and steam from the offgas line near the melter exhaust to the film cooler. (PSAR Section: 2.5.3.1) Item 2 changes a function as described in chapter 2 of the PSAR by removing the interlock to trip melter feed on loss of cooling steam or air flow to the film coolers. (PSAR Section: 2.5.3.3) Item 3 changes a function as described in chapter 2 of the PSAR by removing the interlock to trip melter feed on high nitrous oxides (NOx) downstream of the selective catalytic reduction (SCR) unit. (PSAR Section: 2.5.3.3) Item 4 changes a function as described in chapter 2 of the PSAR by adding monitoring for high radiation on the sample filter downstream of the HEPAs. Item 5 changes a function as described in chapter 2 of the PSAR by removing high differential temperature monitoring across the catalytic oxidizer/reducer unit. (PSAR		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

	Section: 2.5.4.2.3) Item 6 corrects the cited melter offgas exiting temperature from a value of 400 °C to a range of 400 °C to 600 °C based on pilot melter operating data. This impacts the text description in the LAW Melter Offgas Release DBE (chapter 3 of PSAR). The LAW Melter Offgas Release DBE will be updated to include a range with an upper bound of 600 °C in the exiting temperature of the offgas from the melter. This clarification does not impact the consequences or conclusions reported in the calculation. (PSAR Sections: 3.4.1.1.1, 3.4.1.1.2.6) Item 7 changes a description in chapters 3 and 4 of the PSAR by changing the operating philosophy of the ITS (SDS) HEPA filter preheaters from one online with the second on standby to having both operational at 50% capacity. (PSAR Sections: 2.5.4.2.1, 4.4.2.5) Item 8 changes the description of the ITS (SDS) interlock between high level in the SBS and the circulation pumps to high level in the SBS and the supply valves to the cooling coils (SCR-LINST/N0052). (PSAR Sections: Table 3-10, 4.4.3.1, 4.4.3.3, 4.4.3.4, 4.4.3.5, 4.4.3.6, Table 4-2, 5.5.2, Appendix A) Item 9 removes the ITS (SDS) control to monitor the WESP power supply and alarm (SCR-LINST/N0046) and replaces it with the ITS (SDS) control to stop feed to the melters on detection of high differential pressure across the first bank of HEPA filters (SCR-LINST/N0061). (PSAR Sections: Table 3-10, 4.4.4.1, 4.4.4.3, 4.4.4.4, 4.4.4.5, 4.4.4.6, Table 4-2, 5.5.3, Appendix A) Item 10 adds an ITS (SDS) interlock to stop the injection of water to the film coolers on detection of high melter plenum pressure. (PSAR Sections: 2.5.4.1.1, 4.4.6.1, 4.4.6.3, 4.4.6.5, 4.4.6.6, Table 4-2, 5.5.5, Appendix A) Item 11 removes the ITS (SDS) control to isolate the melter pressure control air at a predetermined melter pressure (SCR-LINST/N0065). The ITS (SDS) safety function to stop the flow of plant service air to the film coolers on high melter plenum pressure is already performed by SCR-LINST/N0066. (PSAR Sections: Table 3-10, 4.4.6.1, 4.4.6.3, 4.4.6.5, Table 4-2, 5.5.5, Appendix A) Item 12 revises chapter 3 of the PSAR to reflect that there are 24 HEPA filters in the offgas system. (PSAR Sections: 3.4.2.1.2.1, Table 3-16, Table 3-17)		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: Items 1-7, and 12 do not change the classification of an existing item in the PSAR. The offgas treatment system is designated as ITS (SDC) in the PSAR for containment of the NOx concentrated offgas (Facility Worker protection) and for directing the offgas flow to the stack (Co-located Worker protection). Supporting equipment that mitigates surges (e.g., feed interlock) or ensures unrestricted flow (e.g., dP monitoring across first bank of offgas HEPA filters) are designated as ITS (SDS). Item 8 changes the ITS (SDS) interlock of the chilled water to trip the supply valves to the cooling coils in the SBS rather than tripping the circulation pumps. Item 9 removes the ITS (SDS) control to monitor the WESP power supply and alarm if a malfunction is detected. Item 10 adds an ITS (SDS) interlock to stop water additions to the film coolers on detection of high melter plenum pressure. Item 11 removes the ITS (SDS) control to isolate the melter pressure control air at a predetermined melter pressure.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☒	☐

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

	Basis: Items 1-6, and 12 do not involve changes to ITS equipment and do not impact the safety function descriptions in chapter 4 of the PSAR. Changes 7-11 impact the method in which an ITS (SDS) safety function is met (e.g. equipment change), but do not impact or change the safety function itself (e.g. isolate inputs to the film cooler during significant pressure events). As such, a description associated with a safety function is impacted and this question has been answered yes. Item 7 changes the operating philosophy of the ITS (SDS) HEPA filter preheaters from one online with the second on standby to having both operational at 50% capacity. This does not change the ITS (SDS) safety function of ensuring the offgas HEPA filters do not become saturated with moisture. Item 8 changes the ITS (SDS) interlock of the chilled water to trip the supply valves to the cooling coils in the SBS rather than tripping the circulation pumps. This change in equipment does not impact the ITS (SDS) safety function of ensuring that the SBS does not flood and thereby become a potential blockage point in the offgas line. Item 9 removes the ITS (SDS) control to monitor the WESP power supply and alarm if a malfunction is detected. However, the ITS (SDS) safety function to prevent the HEPA filters from becoming saturated with moisture to the point of blocking the offgas pathway is maintained by interlocking feed to differential pressure monitoring across the first bank of HEPA filters (companion to control identified in 24590-WTP-ABCN-ENS-02-008). Item 10 will add an ITS (SDS) control to isolate the demineralized water to the film coolers on detection of high melter plenum pressure. This is a refinement of the existing ITS (SDS) safety function to protect against overload of the melter offgas flowpath and subsequent pressure rise in the melter by isolating inputs to the film coolers (e.g. air). Item 11 removes the ITS (SDS) control to isolate the melter pressure control air at a predetermined melter pressure. Due to design changes, both melter pressure control air and injection air can be isolated at a common point (plant air). This is a refinement of the existing ITS (SDS) safety function to isolate inputs to the film cooler during significant melter plenum pressurization events.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☒	☐
	Basis: Item 1 does not create a new hazard or affect the hazard or accident analysis contained in the PSAR. Item 2 removes the interlock to trip melter feed on loss of cooling steam or air flow to the film coolers. Loss of cooling steam or air flow to the film coolers does not have immediate Important to Safety consequences requiring an automated interlock to stop or prevent feeding the melter. Over extended periods of time, loss of steam or air may result in plate out on the film cooler restricting its function. As such, this situation may lead to a process decision to manually initiate stopping feed to the melters. Item 2 does not create a new hazard or affect the hazard or accident analysis contained in the PSAR. Item 3 removes the interlock to trip melter feed on high NOx downstream of the SCR unit. The offgas treatment system is designated as ITS (SDC) in the PSAR for containment of the NOx concentrated offgas (Facility Worker protection) and for directing the offgas flow to the stack (Co-located Worker protection). Supporting equipment that mitigates surges (e.g. feed interlock) or ensures unrestricted flow (e.g. dP monitoring across first bank of offgas HEPA filters) are designated as ITS (SDS). NOx treatment has not been credited with performing an Important to Safety function. Item 3 does not create a new hazard or affect the hazard or accident analysis contained in the PSAR. Item 4 adds monitoring for high radiation on the sample filter downstream of the HEPAs. This enables a more precise method of determining filter efficiency and, based on the low		

JK 8/7/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

	source term associated with this stream, does not create new hazards or affect the accident analysis in the PSAR. Item 5 removes high differential temperature monitoring across the catalytic oxidizer/reducer unit. High temperature differential across the catalytic oxidizer/reducer unit does not have safety consequences requiring alarms, controls, or interlocks. This change does not impact the ITS (SDS) requirement to detect low selective catalytic reducer inlet gas temperatures and shut off urea feed to prevent bulk ammonium nitrates from forming in the melter offgas system. As such, Item 5 does not create a new hazard or affect the hazard or accident analysis contained in the PSAR. Item 6 corrects the cited melter offgas exiting temperature from a value of 400 °C to a range of 400 °C to 600 °C based on pilot melter operating data. This impacts the text description in the LAW Melter Offgas Release DBE (chapter 3 of PSAR). The LAW Melter Offgas Release DBE will be updated to include a range with an upper bound of 600 °C in the exiting temperature of the offgas from the melter. This clarification does not impact the consequences or conclusions reported in the calculation. Item 7 changes the operating philosophy of the HEPA filter preheaters from one online with the second on standby to having both operational at 50% capacity. By changing the operating philosophy to having both heaters online this eliminates the need for a signal to start the backup heater on indication of low differential temperature across the HEPA preheaters. If one of these heaters fails, a minimum temperature increase of 10 °C is still achieved without a time delay to switch to the standby preheater. As such, Item 7 does not create a new hazard. Items 8-11 impact descriptions of ITS (SDS) controls in the accident analysis and hazards analysis (Appendix A) in the PSAR (although not the safety function itself). Item 8 changes the ITS (SDS) interlock of the chilled water to trip the supply valves to the cooling coils in the SBS rather than tripping the circulation pumps. Item 9 removes the ITS (SDS) control to monitor the WESP power supply and alarm if a malfunction is detected. Item 10 adds an ITS (SDS) interlock to stop water additions to the film coolers on detection of high melter plenum pressure. Item 11 removes the ITS (SDS) control to isolate the melter pressure control air at a predetermined melter pressure. These changes have been evaluated through the ISM process (CCN 035683, CCN 036761, CCN 047907, CCN 068268) and do not create new hazards. Item 12 corrects the cited number of melter offgas/vessel ventilation system HEPA filters from 12 to 24. Extrapolating from the LAW Severity Level Calculation (24590-LAW-Z0C-W14T-00003, Rev. B), the dose consequences to the closest receptor (Facility Worker) from crushing 24 fully loaded filters (588g/filter) is approximately 5.2E-01 rem. Releases from these filters have no significant affect on LAW radiological dose consequences reported in the Seismic Design Basis Event.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: The current design for WTP operations was determined to remain safely subcritical under normal and credible accident conditions as documented in WTP Criticality Safety Evaluation Report 24590-WTP-RPT-NS-01-001, Rev. 2. The changes identified by this system description revision do not modify any of the parameters affecting criticality during waste processing, which are documented in Table 4 of 24590-WTP-RPT-NS-01-001, Rev. 2. The proposed design will continue to remain safely subcritical under normal and credible accident conditions.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒

Safety Evaluation For Design

JK 8/7/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	**Rev. # 0**
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	**Rev. # 0**

	Basis: The Severity Level Calculation 24590-LAW-Z0C-W14T-00003 and the LAW PSAR have analyzed various accident sequences in the LAW facility. The changes identified by this system description revision do not increase exposures, contamination levels, or releases of radioactivity to the environment, as they do not change the function or reduce the performance of the system. An ALARA Design Review has been completed for the system as documented in 24590-LAW-ADR-M-02-022, Rev. 0 and 24590-LAW-ADR-M-02-023, Rev. 0. The AB changes identified in this system description do not modify any of the parameters affecting this ADR.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: This system description revision does not affect any other Authorization Basis documents. Examples of documents reviewed include 24590-WTP-RPP-ESH-01-002, *Radiation Protection Plan for Design and Construction*, 2590 WTP-QAM-01-001, *Quality Assurance Manual*, etc.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: The system description is consistent with the current hazards analysis and control strategies identified through the ISM process (CCN 035683, CCN 036761, CCN 047907, CCN 068268). There is no need for further ISM meetings to evaluate these changes.		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Christopher Lindquist *Print/Type Name*	Christopher Lindquist *Signature*	08/06/2003 *Date*
Design Document Originator/ Supervisor:	Ted Anderson *Print/Type Name*	Ted Anderson *Signature*	8-7-03 *Date*
Only required for screenings requiring NO ABCN or ABAR:			
H&SA Lead:	Dana Cresci *Print/Type Name*	Dana C Cresci *Signature*	8/7/03 *Date*

Concurrence received from P.L. via Telecon on 8/7/03 DC 8/7/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The offgas treatment system is designated as ITS (SDC) in the PSAR for containment of the NOx concentrated offgas (Facility Worker protection) and for directing the offgas flow to the stack (Co-located Worker protection). Supporting equipment that mitigates surges or ensures unrestricted flow are designated as ITS (SDS). The changes to the AB identified by this system description modify non-ITS equipment or ITS (SDS) control descriptions in the accident analysis in the PSAR. These changes do not represent the creation of new safety functions and do not result in the creation of a new DBE		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: Ground level offgas releases are prevented by the current set of control strategies. The modifications to the ITS (SDS) equipment supporting the confinement function of the ITS (SDC) offgas boundary do not impact the consequence or the frequency of an analyzed DBE as described in the Preliminary Safety Analysis Report.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: Items 1-6, and 12 do not involve changes to ITS equipment and do not impact the safety function descriptions in the PSAR. The offgas treatment system is designated as ITS (SDC) in the PSAR for containment of the NOx concentrated offgas and for directing the offgas flow to the stack. The changes identified by this system description revision do not alter this SDC safety function. Changes 7-11 impact the method in which an ITS (SDS) safety function is met (e.g. equipment change), but do not impact or change the safety function itself. Item 7 changes the operating philosophy of the ITS (SDS) HEPA filter preheaters from one online with the second on standby to having both operational at 50% capacity. By having both heaters online, the need for a signal to start the backup heater on indication of low differential temperature across the HEPA preheaters is eliminated. However, this does not affect the safety function of maintaining the differential airflow temperatures across the heaters sufficient to prevent moisture condensation before entering the HEPA filters when any melter is operating. Elimination of condensate is achieved by reducing the relative humidity of the offgas stream to below 85%, which based on psychometric charts can be accomplished with an increase in temperature of 5 °C. Therefore, this operational change is safe as it will ensure one heater is operating at all times which will provide a minimum temperature increase of 10 °C. Item 8 changes the ITS (SDS) interlock of the chilled water to trip the supply valves to the cooling coils in the SBS rather than tripping the circulation pumps. This modification does not change the ITS (SDS) safety function of isolating the chilled water to the SBS cooling coils on detection of high level to reduce the potential to flood the SBS to the point of blocking the melter offgas pathway. Item 9 removes the ITS (SDS) control to monitor the WESP power supply and alarm if a malfunction is detected. Malfunction of the WESP power supply might not be readily detected and the primary concern of loading the HEPA filters would be best detected by		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	Rev. # 0
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	Rev. # 0

	monitoring the differential pressure across the first bank of HEPA filters. Differential pressure monitoring across the first bank of HEPA filters and ITS (SDS) interlock to stop melter feed on detection of high differential pressure were identified in 24590-WTP-ABCN-ENS-02-008. Therefore, the ITS (SDS) safety function of reducing the potential to plug the HEPA filters to the point of blocking the offgas pathway is maintained. Item 10 adds an ITS (SDS) interlock to stop water additions to the film coolers on detection of high melter plenum pressure. Addition of demineralized water to the melter will result in additional steam carryover to the offgas system and increased melter plenum pressure. If this occurred during periods of high melter plenum pressure this would prolong the duration of melter plenum pressure above the operating range. This control is considered a refinement of the ITS (SDS) control strategy to isolate inputs to the melter on loss of vacuum (similar to SCR-LINST/N0066). Item 11 removes the ITS (SDS) control to isolate the melter pressure control air at a predetermined melter pressure. However, the ITS (SDS) safety function to protect against overload of the melter offgas flowpath and subsequent pressure rise in the melter is maintained by isolating the air supply valve located on the common plant service air header that connects the injection air lines and melter pressure control air lines (i.e., SCR-LINST/N0066).		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: The changes identified by this system description revision do not result in a noncompliance with applicable laws and regulations or nonconformance to top-level safety standards.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The ITS (SDC) safety function of the offgas treatment system is for containment of the NOx concentrated offgas and for directing the offgas flow to the stack. As discussed in question responses above and in Part 1 of the Safety Evaluation, these changes provide adequate safety.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: The changes identified by this system description revision do not result in nonconformance to the contract requirements associated with the authorization basis document effected by these changes.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The changes identified by this system description revision do not result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	BC	8/7/03

Safety Evaluation For Design

DK 8/7/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-017	**Rev. # 0**
Design Document Evaluated: 24590-LAW-3YD-LOP-00001	**Rev. # 0**

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific Information	24590-WTP-PSAR-ESH-01-002-03	0a	2.5.3.1, 2.5.3.3, 2.5.4.1.1, 2.5.4.2.1, 2.5.4.2.2, 2.5.4.2.3, 3.4.1.1.1, 3.4.1.1.2.6, Table 3-10, 4.4.2.5, 4.4.3.1, 4.4.3.3, 4.4.3.4, 4.4.3.5, 4.4.3.6, 4.4.4.1, 4.4.4.3, 4.4.4.4, 4.4.4.5, 4.4.4.6, 4.4.6.1, 4.4.6.3, 4.4.6.5, 4.4.6.6, Table 4-2, 5.5.2, 5.5.3, 5.5.5, Appendix A

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Chris Lindquist	Chris Lindquist	08/06/2003
☒	AB Document Custodian	Dwight Krahn	Dwight Krahn	8/7/03
☐	Quality Assurance			
☒	Engineering	Cliff Winkler	C J Winkler	8/7/03
☒	Affected Area Project Manager	Bill Clements	W. J. Clements	8/7/03
☒	Operations	Dave Burks	Dave Burks	8/7/03
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) — Fred Beranek (*Signature*) — 8/8/03 (*Date*)

Attachment

System Description Comparison

As Described in 24590-LAW-3YD-LOP-00001, Rev. 0		As Described in 24590-WTP-PSAR-ESH-01-002-03, Rev. 0a	
SCR-LELEC/N0006	The melter offgas *exhausters* shall be supplied by uninterruptible power in the event of a loss of normal power.	SCR-LELEC/N0006	The melter offgas fans shall be supplied by uninterruptible power in the event of a loss of normal power.
SCR-LELEC/N0007	Melter offgas *exhauster* shall remain functional following a SC-III event.	SCR-LELEC/N0007	Melter offgas fans shall remain functional following a SC-III event.
SCR-LINST/N0036	*Injection of urea (ammonia)* into the LAW offgas system shall be terminated at a predetermined low SCR temperature.	SCR-LINST/N0036	Ammonia (urea) injection into the LAW offgas system shall be terminated at a predetermined low SCR temperature.
SCR-LINST/N0047	Offgas *exhauster* isolation *valves* are designed to fail open on loss of actuating power.	SCR-LVENT/N0010	Offgas fan isolation dampers are designed to fail open on loss of actuating power.[1]
SCR-LINST/N0066	Steam/*plant service* air flow to the melter film cooler will be isolated (interlock) at a predetermined melter pressure.	SCR-LINST/N0066	Steam/air flow to the melter film cooler will be isolated (interlock) at a predetermined melter pressure.
SCR-LINST/N0093	Offgas *exhauster* isolation *valves* are designed to fail open on loss of control signal.	SCR-LINST/N0093	Offgas fan isolation dampers are designed to fail open on loss of control signal.[1]
SCR-LPPV/N0003	Offgas HEPA filters are provided with heaters upstream sufficient to reduce R.H. to acceptable levels under anticipated operating conditions.	SCR-LPIPN/N0014	Offgas HEPA filters are provided with heaters upstream sufficient to reduce R.H. to acceptable levels under anticipated operating conditions.
SCR-LPPV/N0004	The melter offgas system is designed to accommodate surges in the melter.	Note: This is a new SCR; however, this has always been an inherent control philosophy for the offgas system.	
SCR-LPPV/N0007	Melter offgas design includes an alternate path to the SBS.	SCR-LPIPN/N0028	Melter offgas design includes an alternate path to the SBS.
SCR-LPPV/N0010	Offgas system and components downstream of the exhausters are designed to remain structurally sound under the full *exhauster* discharge pressure.	SCR-LPIPN/N0032	Offgas system and components downstream of the exhaust fans are designed to remain structurally sound under the full fan discharge pressure.
SCR-LPPV/N0015	Offgas system/components upstream of the *exhausters* are designed to remain intact and functional to direct melter offgas to the *stack* under the maximum vacuum that the *exhausters* can pull.	SCR-LPIPN/N0052	Offgas system/components upstream of the exhaust fans are designed to remain intact and functional to direct melter offgas to the exhaust stack under the maximum vacuum that the fans can pull.
SCR-LPPV/N0016	The melter offgas system is designed to operate with a single *exhauster* and still	SCR-LPIPN/N0055	The melter offgas system is designed to operate a single fan and still be capable of

System Description Comparison

As Described in 24590-LAW-3YD-LOP-00001, Rev. 0		As Described in 24590-WTP-PSAR-ESH-01-002-03, Rev. 0a	
	be capable of adequately venting the melter (without surges).		adequtely venting the melter (without surges).
SCR-LPPV/N0017	Offgas *exhausters* shall be provided with backflow prevention devices.	SCR-LPIPN/N0058	Offgas fans shall be provided with backflow prevention devices.
SCR-LPPV/N0019	The LAW melter offgas components are designed to provide an unobstructed flowpath during and following a SC-III seismic event.	SCR-LPIPN/N0061	The LAW melter offgas components are designed to provide an unobstructed flowpath during and following a SC-III seismic event.
SCR-LPPV/N0027	Offgas *HEPA filter manual isolation dampers* shall be configured such that it is not possible to isolate both filter trains at once.	SCR-LVENT/N0003	Offgas filter isolation valves shall include manual isolation valves configured such that it is not possible to isalate both filter trains at once.
SCR-LADM/N0001	Offgas system manual isolation valves located out of the process cells will be locked open.	SCR-LPIPN/N0050	Offgas system manual isolation valves located out of the process cells will be locked open.
SCR-LADM/N0028	Offgas HEPA filter isolation valves shall be locked shut prior to initiating filter changeout.	SCR-LADM/N0028	Offgas HEPA filter isolation valves shall be locked shut prior to initiating filter changeout.
SCR-LADM/N0035	Demineralized water supply to offgas system component wash rings shall be locked shut whenever a cold cap is present on any melter.	SCR-LADM/N0035	Demineralized water supply to offgas system component wash rings shall be locked shut whenever a cold cap is present on any melter.
SCR-LADM/N0046	Two melter exhausters are required to be running during normal melter operations.	SCR-LADM/N0046	Two melter exhausters are required to be running during normal operations.
SCR-LADM/N0070	Access to process cells (including removal of roof plugs) in which the melter pressure relief device discharges will be prohibited unless the melter is idled with no cold cap present.	SCR-LADM/N0070	Access to process cells (including removal of roof plugs) where the melter pressure releif device discharges will be prohibited unless the melter is idled with no cold cap present.

[1] As amended by 24590-WTP-ABCN-ENS-02-008.

Attachment 3

Authorization Basis Change Notice 24590-WTP-SE-ENS-03-121, Revision 0

Safety Evaluation For Administrative Controls

2/11/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-121 Rev. 0
Document Evaluated:	24590-WTP-PSAR-ESH-01-002-03, rev 00A 24590-WTP-PSAR-ESH-01-002-04, rev 00B 24590-WTP-PSAR-ESH-01-002-02 rev. 00A

ISSUED BY RPP-WTP PQC
INIT 2-24-03 DATE

Consists of Parts: ☒ 1 ☒ 2 ☐ 3

Description of change:

Delete from the next PSAR updates:

PT PSAR Appendix B, "Hazards Affecting Subsurface Pits and Tunnels Design"; Appendix C, "Hazards Affecting the Basemat Design"; and Appendix D, "Hazards Affecting Selected Above Grade Walls Design"

LAW PSAR Appendix B, "Hazards Affecting the Walls to Grade or Walls to Grade Design".

HLW PSAR Appendix B, "Hazards Affecting the Walls to Grade Design".

Reason for change:

The information in these Appendices for PT, LAW, and HLW was drawn from the text in Chapter 3 and Appendix A and as such, summarizes the hazardous situations already identified in the Standards Identification Process Database (SIPD). These Appendices were inserted into the PSARs to support approval for limited facility construction. Therefore elimination of these appendices does not result in a change in details or conclusions concerning DBE analyses or features credited to prevent or mitigate analyzed events.

This safety evaluation is used to determine if this AB document change falls within the threshold of changes that may be made without prior DOE approval. It also serves to document the safety of this administrative control change.

Part 1 Safety Evaluation		**YES**	**NO**
1.	Does the document involve deletion or modification of a standard previously identified or established in the approved SRD? **Basis:** No safety criterion designated in the SRD is being changed and no safety standard designated in SRD is eliminated or tailored by this change.	☐	☒
2.	Does the document involve modification of an approved technical safety requirement (TSR) (only after Production Operations Authorization Agreement approval)? **Basis:** Not applicable, pre-production operations authorization.	☐	☒
3.	Does the document result in any noncompliance with applicable laws and regulations, nonconformance to top-level safety standards, nonconformance to the requirements of the SRD, or fail to provide adequate safety? **Basis:** Since the information in these Appendices was drawn from the text in Chapter 3 and Appendix A, adequate safety is provided. Likewise, compliance with laws, regulations and top-level safety documents is documented in the remaining portions of the PSAR documents.	☐	☒
4.	Does the document result in a nonconformance to the contract requirements associated with the authorization basis documents affected by the proposed change? **Basis:** The remaining portions of the PSAR documents adequately address the contract requirements.	☐	☒
5.	Does the document result in inconsistencies with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement?	☐	☒

Safety Evaluation For Administrative Controls

 6/11/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-121 Rev. 0
Document Evaluated:	24590-WTP-PSAR-ESH-01-002-03, rev. 00A 24590-WTP-PSAR-ESH-01-002-04, rev. 00B 24590-WTP-PSAR-ESH-01-002-02 rev. 00A

Part 1 Safety Evaluation		**YES**	**NO**
	Basis: The only authorization basis document that address the subjects in these Appendices is the remainder of the PSAR and no inconsistencies exist. The authorizations to proceed with facility construction activities do not reference these Appendices. Events that affect SCRs associated with walls to grade, above grade walls, or pits and tunnels will be fully described in the updated PSAR including responses to questions presented as a result of the initial review of the PSAR Appendices B, C, D as applicable (for example, PT-PSAR-327). Responses to questions presented as a result of the initial review of the PSAR Appendices B, C, D that included a commitment to revise PSAR Appendices B, C, or D are closed by this SE. Closure may include deletion of material no longer appropriate to the PSAR or incorporation of pertinent text in Chapter 3 addressing all applicable events. (Responses closed include; PT-PSAR-335, LAW-PSAR-022, HLW-PSAR-171, and HLW-PSAR-172).		
6.	Does the document conflict with an open or pending ABCN or ABAR? **Basis:** Open or pending ABCNs or ABARs may address changes to Chapters 2, Chapter 3 or Addendix A which address the same information that is in the Appendices being deleted. Deletion of the redundant language in these Appendices, in each case, will not affect the implementation of any impending AB changes.	☐	☒

If all questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 2 of this form and send to the E&NS AB Coordinator. If any Part 1 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete parts 2 AND 3 of this form and send to the E&NS AB Coordinator.

BNI-approved AB change?	☒ Yes	☐ No
DOE-approved AB change?	☐ Yes	☒ No

Safety Evaluator Preparer:	Herb McGilton *Print/Type Name*	Herb McGilton *Signature*	6/11/03 *Date*
Administrative Control Document Originator:	MARK PRATT *Print/Type Name*	Mark Pratt *Signature*	6/27/03 *Date*

Safety Evaluation For Administrative Controls

Safety Evaluation No.:	24590-WTP-SE-ENS-03-121 Rev. 0
Document Evaluated:	24590-WTP-PSAR-ESH-01-002-03, rev. 00A 24590-WTP-PSAR-ESH-01-002-04, rev. 00B 24590-WTP-PSAR-ESH-01-002-02 rev. 00A

Part 2 BNI-Approved AB Change (ABCN)

If this is a BNI-approved change, list affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific Information.	24590-WTP-PSAR-ESH-01-002-03	0A	Appendix B
Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information.	24590-WTP-PSAR-ESH-01-002-04	0B	Appendix B
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information.	24590-WTP-PSAR-ESH-01-002-02	0A	Appendix B, Appendix C, Appendix D

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Herb McGilton	Herb McGilton	6/11/03
☒	AB Document Custodian	DWIGHT ICRAHN, LAW TABOR HERSUM, PT DONAVON FOSS	Dwight E Krahn Tabor Hersum Donavon Foss	6/26/03 6/26/03 6/26/03
☐	Quality Assurance			
☐	Engineering			
☒	Affected Area Project Manager	R.E. LAWRENCE, PT R.W. SCHMITT, HLW W.T. CLEMENTS, LAW	R.E. Lawrence W.T. Clements	6/27/03 6/30/03 7/1/03
☐	Operations			
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Bonnot (*Print/Type Name*) W. Klein / F. Bonnot (*Signature*) 7/22/03 (*Date*)

Attachment 4

Authorization Basis Change Notice 24590-WTP-SE-ENS-03-165, Revision 0

ISSUED BY
RPP-WTP PDC
JC 7.28-05
INIT DATE

Safety Evaluation For Design

JR 7/16/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated: 24590-PTF-3PS-MEVV-T0002	**Rev. # 1**

Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4

Title: Safety Evaluation for the CNP Forced Circulation Design

Description of design change:

The design of the CNP Evaporator has changed from a natural circulation concept to a forced circulation design. The detailed descriptions of the changes involved are documented in the referenced document – described above as "Design Document Evaluated" - and in the document DCA # 24590-PTF-DCA-PR-03-005, Rev. 0.

The design changes involved relative to equipment addition, removal, and system modifications are summarized below:

The CNP lute pot (CNP-VSL-00002) will be removed. The process sample will be extracted on the suction side of the recirculation pump in the forced circulation design. The RFD will be relocated to the recirculation piping for sampling purposes. The transfer ejectors will be rearranged to interface with the recirculation loop piping.

1. A recirculation pump (CNP-PMP-00001) will be installed upstream of the reboiler in the recirculation loop of the forced circulation evaporator system. The forced circulation design strategy increases flow rates and pressures for the recirculation pipework. The expected flow rate within the recirculation loop is expected to be approximately 3500 gpm. This will be achieved with an increase in pressure obtained with the addition of the recirculation pump. The evaporation rate and throughput of the evaporator system will remain unchanged.
2. An inter-condenser (CNP-HX-00004) will be installed in the rectifier overhead condenser system. This condenser will supplement the primary condenser and the after-condenser in the existing design. The inter-condenser will cool the vacuum ejector steam and condense it (to liquid form).
3. The internal demisting pad system of the separator vessel will incorporate a removable unit. The demister design strategy for the FEP evaporator will also be implemented for the CNP system. The demister will be of segmented design and the configuration will allow pad disassembly and removal.
4. The air blanket requirement for the non-operating/idle condition of the reboiler will be deleted from the design.

Reason for design change:

The RFQ issued for the evaporator, based on a natural circulation concept, was given consideration by the vendors. Based on vendor input, an evaporator design based on the forced circulation concept was considered to be preferable.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒

Safety Evaluation For Design

DR 7/16/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated: 24590-PTF-3PS-MEVV-T0002	**Rev. # 1**

	Basis: The design changes described above do not modify or delete any standard prescribed in the Safety Requirements Document (SRD), Volume II. These changes were implemented to enable a vendor to build the CNP Evaporator based on a design that meets all functional requirements.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The following changes in the CNP design basis, from a natural circulation concept to a forced circulation configuration, involve alterations in the location of SSCs described in the PSAR: (i) The removal of the lute pot (CNP-VSL-00002). This also involves relocation of the RFD (CNP-RFD-00004) from this vessel to a location between the Separator Vessel (CNP-EVAP-00001) and the recirculation pump (CNP-PMP-00001). This will be used for collection of samples via the Auto-sampler directly from the recirculation piping. (ii) The addition of a recirculation pump between the evaporator vessel (CNP-EVAP-00001) and the reboiler (CNP-HX-00001). This design change will lead to an increase in the recirculation loop flow rate from around 100–150 gpm to around 3,500 gpm. A consequence of this will be changes in the size of the associated segment of the recirculation piping, from 2 inch diameter piping to 16 inch diameter piping (approximately). (iii) The addition of a third condenser (CNP-HX-00004) to the rectifier overhead condenser system. (iv) The deletion of the requirement for an air blanket for non-operating/condition of the reboiler.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: The following changes in design involve items being deleted or reclassified, as described in the PSAR: (i) The lute pot (CNP-VSL-00002) will be deleted from the new design. (ii) The recirculation pump (CNP-PMP-00001), a new item in the design, will be classified as QL-1 and SC-I, which is consistent with the current PSAR classification for the CNP System components. (iii) The remaining modifications to the design (such as the addition of an inter-condenser, larger diameter recirculation piping between the separator vessel and the reboiler, and the replaceable unit for the demister pad) do not involve changes to SSC classifications.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: The design changes described here will not impact adversely the safety functions described in Chapter 4 of the PSAR. No additional SDC or SDS controls are needed to prevent or mitigate the effects of potential accidents involving the revised CNP design.		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-165	Rev. # 0
Design Document Evaluated: 24590-PTF-3PS-MEVV-T0002	Rev. # 1

5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☒	☐
	Basis: The design changes described here do create a new hazard and affect the accidents analyzed in the PSAR. The new hazard and accident scenario of potential concern involves a spray leak that may develop as a result of increased pressure in the recirculation loop piping. However, accidents of this type (spray leaks in pressurized piping and other equipment) that are analyzed in the PSAR bound similar potential CNP System accidents (with ample safety margin). The following discussion about two major design changes is pertinent in the context of safety. (i) The switch-over from a natural circulation design concept to a forced circulation configuration (with the addition of a recirculation pump) will involve increased pressures (~ 30 psia) and flow rates (~ 3,400 gpm) inside the recirculation piping. The higher process fluid pressure increases the potential for a spray leak accident and attendant consequences, as a result of the failure of a seal inside the recirculation pump. A similar situation may arise due to another failure mechanism that leads to a pinhole or larger leak in the pump or the piping. Spray leak events for the PTF systems are documented in section 3.4.1.4 of the PSAR (#24590-WTP-PSAR-ESH-01-002-02, Rev 0a). The source term calculation assumes a sharp-edged orifice leak, a line pressure differential of 200 psi, and a maximum release time of 2 hours. This limiting accident scenario analyzed in the PSAR bounds the pressures (and hence the release rates) associated with the forced circulation configuration for the CNP Evaporator. The only other significant factor in the estimation of dose to the worker or the public involves the radioactivity levels in the CNP System versus those analyzed in the PSAR. The PSAR considered unit dose levels (in the HLP01and HLP09 streams) that were at least a factor of 5 higher than those encountered in the CNP System (CNP12 stream). (See Calc. No. 24590-WTP-Z0CW14T-00013, Rev A.) (ii) The redesigned recirculation loop piping between the separator vessel and the reboiler will lead to a larger volumetric inventory of radioactive materials in this segment of the CNP System, and hence a greater hazard. This increase in radioactive inventory will not have any impact on the new potential accident scenario described above (preceding item (i)).		
6.	Does the change affect criticality safety?	☐	☒
	Basis: The design changes considered here will not impact criticality safety adversely. There are no changes in criticality safety considerations between the natural circulation and forced circulation designs for the CNP Evaporator. And, for either design, criticality safety considerations will not arise so long as less than 0.5 kilograms of Pu are held in the Ion Exchange (CXP) System. (See "WTP Criticality Safety Evaluation Report", # 24590-WTP-RPT-NS-01-001, Rev 3.) This requirement is not considered to be a limitation in the operation of the CNP System, and is expected to be satisfied with margin to spare.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: The design changes will not affect adversely exposure to radiation doses. The impact of a pressurized spray release is significantly lower than that for the bounding accident investigated for the PT facility in the PSAR. And, this is expected to be the worst case scenario with regard to potential hazards and accidents that may arise as a result of		

Safety Evaluation For Design

JR 7/16/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated:	24590-PTF-3PS-MEVV-T0002	**Rev. # 1**
	~~24590-PTF-M6-CNP-00008,~~	~~Rev. # 0,~~ JR 7/16/03
	~~24590-PTF-M6-CNP-00010,~~	~~Rev. # 0.~~ JR 7/16/03

	switching over from a natural circulation concept to a forced circulation evaporator design. An ALARA Design Review was performed, and is contained in the document/report # 24590-PTF-ADR-M-03-011, Rev 0. Considerations related to the releases of radioactivity to the environment are also discussed in answers to Questions 4 and 5 above.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: No other Authorization Basis (AB) documents are affected by the design changes considered in this Safety Evaluation. The only AB document affected by these design changes is the PSAR, "Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information", # 24590-WTP-PSAR-ESH-01-002-02, Rev 0a.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: An ISM Meeting was held for the design changes considered in this Safety Evaluation. The "Meeting Minutes" are contained in "ISM Control Strategy Development for Proposed CNP Forced Circulation Evaporator", CCN: 059080. The major "Outcomes" of the ISM Meeting are summarized below: (i) No hazards were identified that require development of unique control strategies. (That is, existing set of control strategies for the CNP System was determined to be sufficient for hazards related to forced circulation.) (ii) No actions or assumptions were identified that require closure to validate the conclusions of this meeting. (iii) The key impact to the change is that the inventory available for release is greater due to increased piping sizes in the recirculation loop. It was recognized that this may impact the consequences of events, but that the defined control strategies were still valid and appropriate. In connection with item (iii) above, it is clear from answers to Questions 4 and 5 above that the accidents analyzed in the PSAR bound all potential accident scenarios that may arise as a result of switching over to the forced circulation design concept for the CNP Evaporator.		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Bihari Vaishnavi *Print/Type Name*	B Vaishnavi *Signature*	7/8/03 *Date*
Design Document Originator/ Supervisor:	John Hickman *Print/Type Name*	John Hickman *Signature*	7/8/03 *Date*

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead:	NA *Print/Type Name*	 *Signature*	 *Date*

Safety Evaluation For Design

JK 7/16/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated: 24590-PTF-3PS-MEVV-T0002	**Rev. # 1**

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The change from a natural circulation design to a forced circulation configuration does not create a new DBE. The design change does involve increased pressures in the recirculation line (with the addition of the pump) and higher flow rates. This operational scenario of higher process fluid pressure increases significantly the potential for a spray leak accident and subsequent consequences. However, the pressure differential assumed in the limiting spray leak accidents analyzed in the PSAR bound the pressure differentials (and hence the release rates) associated with the CNP forced circulation design. The unit dose levels analyzed in the PSAR are also almost an order of magnitude higher than those expected in the CNP System. The PSAR accident scenarios analyzed for pressurized spray leaks in the PTF, thus, bound the worst case potential accident scenarios introduced by switching over from the natural circulation concept to a forced circulation configuration for the CNP Evaporator design.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: The design changes for the CNP Evaporator will not lead to more than a minimal increase in the frequency of the DBE accidents analyzed in the PSAR. The unmitigated frequency for a potential, pressurized spray leak in the CNP Evaporator should be about the same (~ 0.01, or lower; hence, in the "unlikely" frequency range) as that estimated for the bounding DBE spray leak for the PTF investigated in the PSAR. Both the operating pressure differential and the unit dose level expected in the potential spray leak in the forced circulation CNP Evaporator design will be significantly lower than those used in the bounding PTF spray leak DBE analyzed in the PSAR. Hence, the radiological consequences for the potential spray leak accident scenario in the forced circulation CNP Evaporator design are bounded by those for the limiting spray leaks investigated in the PSAR for the PTF.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The design change will not lead to more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its safety function. The recirculation pump and the higher pressures in the recirculation line in the new design do contribute to increased risk for a pressurized spray leak in comparison to similar risks in the natural circulation configuration. However, the consequences of such a potential DBE scenario in the CNP Evaporator System are bounded by similar limiting DBEs evaluated for the PTF in the PSAR.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒

JR 7/16/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-165	Rev. # 0
Design Document Evaluated: 24590-PTF-3PS-MEVV-T0002	Rev. # 1

	Basis: 10CFR820 - Procedural Rules for DOE Nuclear Activities, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The design changes described here are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10CFR830 - Nuclear Safety Management, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of nuclear safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). The design changes described here are consistent with the requirements of 10CFR830 for facility safety classified SSCs. 10CFR835 - Occupational Radiation Protection, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The design changes described here will not change the radiation protection program or challenge any requirements of 10CFR835. RL/REG-96-0006 - Top-level Radiological, Nuclear and Process Safety Standards and principles, Section 4.2.1, provides high-level statements that express DOE's expectations for the performance of nuclear safety-related activities associated with the WTP design. The proposed changes were developed in accordance with procedures that implement the top-level standards and principles. These changes are consistent with these procedures and do not change them; therefore, the design changes are in compliance with the top-level safety standards. The consequences of an accident due to a pressurized spray leak in the CNP Evaporator forced circulation design are well bounded by those from DBEs evaluated in the PSAR for similar spray leaks in other PTF systems. Hence, the design changes reported here will not lead to any non-compliance with applicable laws and regulations (i.e., 10CFR820, 830, and 835) or non-conformance to top-level safety standards (i.e., DOE/RL-96-0006).		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The design change does not fail to provide adequate safety. The increased risk to safety from a pressurized spray leak in the forced circulation design is relatively small, as the frequency for such risk is expected to be in the "unlikely" category. The consequences of an accident due to a pressurized spray leak in the CNP Evaporator circulation line or pump are significantly lower than those evaluated in the PSAR for similar accidents in other PTF systems.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒

Safety Evaluation No.: 24590-WTP-SE-ENS-03-165	Rev. # 0
Design Document Evaluated: 24590-PTF-3PS-MEVV-T0002	Rev. # 1

	Basis: Contract Standard 7(e)(2), radiological, Nuclear, and Process safety, requires an integrated-standard based safety management program for the WTP, submittal of safety documents and construction authorization requests, and meetings. This Contract Standard also provides document preparation guidance. The design changes reported here were developed in accordance with procedures that implement these contract requirements. The forced circulation configuration design changes are consistent with the procedures described in the contract documents, and do not change these procedures. Hence, the design changes are in compliance with the contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The conditions of acceptance in Sections 4.3.1 (PT Facility Description) and 4.3.2 (PT facility Hazard and Accident Analysis) of the Construction Authorization Agreement (CCN 054383) are not impacted by the proposed design changes. These changes, which replace natural convection with forced convection as a fundamental heat transfer mode in the design of the CNP Evaporator System, are described in the first part of this document. The following DOE Questions/Responses are related to the CNP Evaporator System: PT-PSAR-003, dealing with credited safety functions of the Cesium Nitric Acid Recovery System; PT-PSAR-008, dealing with the design of ITS SSCs (such as the reboiler, separator vessel, and heat exchanger radiation monitors and interlocks) for single failure protection; PT-PSAR-046, dealing with control strategies selected for the Rectifier (Distillation Column) and Recovered Nitric Acid Vessel in the CNP Evaporator System; PT-PSAR-067, dealing with the Nitric Acid Concentration Monitor and Interlock in the Cesium Nitric Acid Recovery Process System; PT-PSAR-161, dealing with the contamination of condensate lines by overfill of the Evaporator Separator Vessel; PT-PSAR-174, dealing with initiating event frequency for over-concentration in the CNP Evaporator System; PT-PSAR-270, dealing with the radiation and contamination level classification of the room which houses the CNP System Rectifier (Distillation Column) and supports maintenance inside the Evaporator/Separator Vessel (contained inside a black cell); PT-PSAR-293, which deals with hydrogen hazard in the CNP Evaporator/Separator Vessel. The Responses to any of the DOE Questions outlined above are not at all affected by the design changes described and evaluated in this document.		

Safety Evaluation For Design

JR 7/14/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated:	24590-PTF-3PS-MEVV-T0002	**Rev. # 1**
	~~24590-PTF-M6-CNP-00008,~~	~~Rev. # 0,~~ JR 7/16/03
	~~24590-PTF-M6-CNP-00010,~~	~~Rev. # 0.~~ JR 7/16/03

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	**Initial**	**Date**
H&SA Lead: MP	PH	7-8-03

Safety Evaluation For Design

JR 7/16/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated:	24590-PTF-3PS-MEVV-T0002	**Rev. # 1**
	~~24590-PTF-M6-CNP-00008,~~	~~Rev. # 0;~~ JR 7/16/03
	~~24590-PTF-M6-CNP-00010,~~	~~Rev. # 0.~~ JR 7/16/03

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	0a	2.4.16.2; 2.5.13; Appendix 3A: Table 3A-21, page 3A-45; Figure 2A-2, page 2A-6; Figure 2A-10, page 2A-14; 4.4.5; Appendix A: pages A-3/-4/-5/-6, D-3.

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Bihari Vaishnavi	B Vaishnavi	7/8/03
☒	AB Document Custodian	Taber Hersum	Taber Hersum	7/9/03
☐	Quality Assurance			
☒	Engineering	Steve Grabowski	[illegible]	7/8/03
☒	Affected Area Project Manager	Bob Lawrence	[illegible]	7/9/03
☐	Operations			
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A			

Safety Evaluation For Design

JK 7/16/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-165	**Rev. # 0**
Design Document Evaluated:	24590-PTF-3PS-MEVV-T0002	**Rev. # 1**
	~~24590-PTF-M6-CNP-00008,~~	~~Rev. # 0;~~ JK. 7/16/03
	~~24590-PTF-M6-CNP-00010,~~	~~Rev. # 0.~~ JK 7/16/03

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 7/16/03 (*Date*)

Attachment 5

Authorization Basis Change Notice
24590-WTP-SE-ENS-03-206, Revision 0
ADVANCE COPY

Safety Evaluation For Design

JE 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: Design Changes to the RDP PFD (24590-PTF-M5-V17T-00020)	

Description of design change:

Part A-I. Changes between Rev. A and Rev. 0 of the Design Document Evaluated.

The following is a list of changes that were made as a part of the design evolution between Rev. A and Rev. 0 of the design document.

1. Plant item tags have been updated from the old Vxxxxx format to the new RDP-VSL-xxxxx format.
2. Process stream numbers have been added to the flow streams, and are updated to comply with current revisions of the Process Streams document.
3. The vessel RDP-VSL-00003 has been replaced with RDP-VSL-00002-C, which has a different configuration and volume. Vessel RDP-VSL-00002-C serves the same function and is of the same design as vessels RDP-VSL-00002-A and RDP-VSL-00002-B.
4. The routing of all process streams has been updated to provide each of the three vessels, RDP-VSL-00002-A/-B/-C, with the same functional capabilities for operational interchangeability.
5. Vessel overflow strategy for the three vessels, RDP-VSL-00002-A/-B/-C, has changed - from a cascading overflow between the vessels and then to vessel PWD-VSL-00033, - to a direct overflow from each vessel to the 'Ultimate Overflow Vessel', PWD-VSL-00033.
6. A DIW stream was added to the three vessels, RDP-VSL-00002-A/-B/-C, for process make-up.
7. A solids detection instrument was added to the slurry transfer stream on the discharge side of the slurry pumps.
8. The pump RDP-PMP-00009 was replaced with the pump RDP-PMP-00008-C, which serves the same function and is of the same design as pumps RDP-PMP-00008-A and RDP-PMP-00008-B
9. The pump RDP-PMP-00010 was eliminated from the design, and its functions were assumed by the pumps RDP-PMP-00008-A/-B/-C.
10. The filter housing RDP-FILTH-00001 has been deleted, along with its associated filter, sample site, and instrumentation.
11. The pressure instrument on the discharge side of the Disposable Spent Resin Dewatering Container was deleted.
12. Emptying ejectors were added to each of the three vessels, RDP-VSL-00002-A/-B/-C, via inclusion in the wash ring/decontamination note.
13. A line was added in a location close to the Disposable Spent Resin Dewatering Container to allow slurry to bypass the Dewatering Container and return to the Spent Resin Slurry Vessel (RDP-VSL-00002-A/-B/-C).
14. A heater was added to the spent resin dewatering air circulation loop. This heater, called the "Spent Resin Dewatering Heater", has the plant item number RDP-HTR-00001.
15. Each of the three vessels, RDP-VSL-00002-A/-B/-C were re-named as "Spent Resin Slurry Vessel". Each of these vessel has a working volume of 7,500 gallons.
16. The overflow routings from CRP and TRP were changed to allow flexibility in overflow from the air-gap vessels to any of the three Spent Resin Slurry Vessels, RDP-VSL-00002-A/-B/-C.
17. A flow indicator was added to the discharge side of the slurry pumps to measure the volume of transfers.
18. A secondary pump suction line was added to each of the three Spent Resin Slurry Vessels, RDP-VSL-00002-A/-B/-C, to decant clear process liquid from above a settled resin bed.
19. Details on the types of radiation instruments, included in the pump discharge header, were added to distinguish between Cesium and Technetium detection.
20. Vent line destination for the pressure relief valve on the Dewatering Container was changed from going into one of the three vessels, RDP-VSL-00002-A/-B/-C, to venting directly into the PVP exhaust stream.
21. The stream that was previously included to potentially transfer spent resin to the LAW melter feed stream was deleted.

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Description of design change:

Part A-II. Changes between Rev. 0 and Rev. 1 of the Design Document Evaluated.

The following is a list of changes included in the Rev 1 of this document, based on incorporation/ implementation of approved design change documentation. The changes are listed below with reference to the corresponding document.

A-II-1. 24590-PTF-M5N-V17T-00002

1. NOTE 1was added to the drawing (area G-1 and G-2) to state "CONTENTS OF THIS DOCUMENT ARE DANGEROUS WASTE PERMIT AFFECTING". This required renumbering of all previous notes on the drawing, in order to accommodate the addition.
2. Drawing notes were renumbered in the "NOTES:" column of the drawing. These changes were also reflected on the drawing in the following areas:
   - Location B-2, Note 6 was renumbered as Note 7.
   - Location B-7, Notes 1 & 2 were renumbered as Notes 2 & 3, respectively.
   - Location C-4, Note 7 was renumbered as Note 11; subsequently, it was relocated to area D-3.
   - Location E-4, Note 5 was renumbered as Note 6.
   - Location G-4, Note 7 was renumbered as Note 11.
   - Locations H2 to H4, inclusive, Note 7 was renumbered as Note 11.
3. Descriptive titles for streams provided previously on off-sheet connectors were updated, as reflected in changes shown in the following areas of the drawing:
   - Area locations B-2 to B-3, "SPENT FLUSH LIQUOR" was retitled "TRANSPORT LIQUID PURGE" on stream RDP09.
   - Area location C-3, "Cs RESIN RECYCLE" was retitled "CXP RESIN RECYCLE" on stream RDP07, and "Cs RESIN FLUSH" was retitled "CXP TRANSPORT LIQUID" on stream RDP06.
   - Area location F-8, "Cs SPENT RESIN AND FLUSH" was retitled "CXP SPENT RESIN SLURRY" on stream CXP18.
   - Area location G-8, "Cs FRESH RESIN LIQUOR" was retitled "CXP TRANSPORT LIQUID" on stream CXP19.
   - Area location H-8, "Cs RESIN OVERFLOW" was retitled "CRP FRESH RESIN OVERFLOW" (no stream number assigned).
4. NOTE 4 was renumbered as NOTE 5 (area locations G-1 and G-2). Emptying ejectors were deleted from the design via modification to NOTE 4/5. This modification consisted of discarding the text "AND EMPTYING EJECTORS".
5. The cesium radiation instrument (RI^{Cs}) was modified to a gamma radiation instrument (RI^{GAMMA}) (area location C-4).
6. Flow indicator (instrument) shown as "FI" (in drawing area C-4) was changed to a flow totalization (instrument) "FQ". It is shown on the discharge sides of both pumps RDP-PMP-00008-A and RDP-PMP-00008-B.
7. The pressure relief valve and the pressure relief discharge stream (RDP03) on the air circulation loop feed to the Dewatering Container (area locations F-3, F-4, and G-4) were moved upstream of the Dewatering Heater RDP-HTR-00001 (area location G-3).
8. NOTE 8 was modified from "THE WORKING VOLUME REPRESENTS THE VOLUME REQUIREMENT BELOW THE UPPER OPERATING LEVEL." To "THE WORKING VOLUME REPRESENTS THE TRANSPORT LIQUID VOLUME REQUIREMENT FOR EACH RESIN REMOVAL OPERATION."

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Description of design change:

A-II-2. 24590-PTF-M5N-V17T-00010

9. Depiction of Pumps RDP-PMP-00008-A/-B (drawing areas B-4 to C-5, inclusive) was modified as follows:

- The pumps were separated on the drawing to show two symbols, labeled RDP-PMP-00008-A and RDP-PMP-00008-B.
- Flow controllers, required to control pump speed, are shown for both pump symbols. They were moved from the upstream side of the pumps to the downstream side.
- Process stream depiction for feed to and return from pump RDP-PMP-00008-B was added to show stream continuity.

10. The solids detection instrument "AI^{TRB}" was moved (drawing area C-4) onto the feed stream to the "DISPOSABLE SPENT RESIN DEWATERING CONTAINER" (drawing area E-3). Also, the indicator superscript "^{TRB}" was deleted. NOTE 12 was added to the notes column on the drawing (area locations E-1 to E-2), stating "INSTRUMENT REQUIRED TO MEASURE PRESENCE OF SOLIDS IN TRANSFER LINE". "NOTE 12" is now depicted near the "AI" in the drawing area E-3.

A-II-3. 24590-PTF-M5N-V17T-00017

11. The off-sheet connector on stream RDP07 (drawing area C-3) was changed from "PTF-00018" to "PTF-00013". The area locator portion of the off-sheet connector was also updated, from "B8" to "F8".

A-II-4. 24590-PTF-DCA-PR-02-006

12. PJMs have been added to vessels RDP-VSL-00002-A/-B/-C, with accompanying "PSA" utility connections and PJM exhaust line. Off-sheet connector, labeled "EXHAUST FROM RFD/PJM TO PJV-DMST-00002-A/B/C", was added to the drawing.
13. Pump RDP-PMP-00008-C was deleted from the drawing (area location C-4). Also deleted was associated information from the plant item list across the top of the drawing (area location H-4).
14. Decant line from the left side of vessel RDP-VSL-00002-C was deleted (area locators C-5 & D-5).
15. Decant line from the right side of vessel RDP-VSL-00002-B was deleted (area locators C-6 & D-6).
16. Decant line from the right side of vessel RDP-VSL-00002-A was deleted (area locators C-7 & D-7).

A-II-5. 24590-PTF-DCA-PR-02-013

17. Overflow capability from the fresh resin addition air-gap vessels, into vessel RDP-VSL-00002-B, was deleted (drawing areas E-6 through G-6, inclusive).

A-II-6. 24590-PTF-DCA-PR-02-015

18. Line flush source was changed from "PSW" utility symbol (area locator E-3) to an off-sheet connector, labeled "LINE FLUSH (DIW) FROM DIW-TK-00004" (drawing area E-2 to E-3). Also, the depiction of the line flush liquid streams shown in drawing area E-3 was changed --- from two separate sources shown for the stream, to one showing both streams originating from the same source.
19. Line flush source was changed from "PSW" utility symbol (area locator C-7) to an off-sheet connector, labeled "LINE FLUSH (DIW) FROM DIW-TK-00004" (drawing area C-7 to C-8).

A-II-7. 24590-PTF-DCA-M-02-015

20. The technetium radiation instrument (RI^{Tc}) was deleted from the drawing (area locator C-4).

A-II-8. 24590-PTF-DCA-PR-03-004

21. Interfaces between the RDP System and the technetium process systems, TXP and TRP, were deleted. This change is depicted as follows:
    - Stream RDP08 was deleted (drawing area B-3 to C-3), along with associated off-sheet connector.
    - Stream RDP05 was deleted (drawing area C-3), along with associated off-sheet connector.

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Description of design change:

- Stream TXP25 was deleted (drawing area F-8), along with associated off-sheet connector.
- Stream TXP28 was deleted (drawing area F-8 to G-8), along with associated off-sheet connector.
- Overflow stream from the TRP System, titled "Tc FRESH RESIN OVERFLOW", was deleted (drawing area G-8). This allowed the deletion of the stream shown from this off-sheet connector to vessel RDP-VSL-00002-C (drawing areas G-5 to G-7 and G-5 to E-5).

A-II-9. 24590-PTF-DCA-PR-03-006

22. "PSA" utility service connections, to provide ITS forced purge air into vessels RDP-VSL-00002-A/-B/-C, were added to the vessels. Additionally, NOTE 13 was added (drawing area E-1 to E-2) to indicate the following: "FORCED PURGE AIR SUPPLY WILL BE PROVIDED TO THE VESSEL VIA A SEPARATE NOZZLE FROM THE PLANT SERVICE AIR HEADER WITH BACKUP IMPORTANT TO SAFETY AIR FOR HYDROGEN MITIGATION. THE PVP WILL INCLUDE THE PIPING, VALVES, AND INSTRUMENTS FOR THE FORCED PURGE AIR SUPPLY.". "NOTE 13" is depicted near the "PSA" designation.

Part A-III. The following is a list of changes between Rev. 0 and Rev. 1 that were not captured in previously approved design change documentation, and which were incorporated into this document:

1. The destination drawing area was changed from "D8" to "F8" for the "OFF SPEC RESIN TRANSFER" off-sheet connector shown in area locator B-3 of this drawing.
2. The depicted location of the "PVP" passive air inlet streams to RDP-VSL-00002-A/-B/-C, along with the associated depiction of "NOTE 9" have been changed. These streams are now shown entering the left side of each vessel (drawing area E-5 through E-8) as opposed to their previous position into the top of each vessel. NOTE 9 was also reworded to state "VESSELS WILL CONTAIN A PASSIVE AIR INLET LINE TO PURGE THE VESSEL VAPOR SPACE. SEE 24590-PTF-M5-V17T-00021003 FOR HEADER." This was done to clarify that the PVP air is a passive air inlet.
3. A dashed-line box was added around the plant item information for vendor design items in the drawing area H-2 through H-4. The dashed-line box around the vendor package equipment appearing in drawing area E-2 to E-4 was altered to include the "AI" particle detection instrument and the line flush connections to the process streams.
4. NOTE 11, in drawing area F-2, was altered from "...VENDOR DESIGN PACKAGE. COMPONENT REQUIREMENTS..." to "...VENDOR DESIGN PACKAGE. COMPONENT AND UTILITY REQUIREMENTS..."
5. NOTE 14 was added in drawing area E-2.
6. The line style has been changed for the box around the DISPOSABLE SPENT RESIN DEWATERING CONTAINER in drawing areas C-3 and D-3.
7. The location of the text for "NOTE 10", in drawing area D-3, was changed. The text was moved from it's previous location outside the DISPOSABLE SPENT RESIN DEWATERING CONTAINER, and shown inside the container boundary.
8. NOTE 15 was added to drawing area D-2 with indication of "NOTE 15" in drawing area F-3. The note states "UTILITY SERVICE PROVIDED TO THE VENDOR PACKAGE MAY BE CHILLED WATER OR COOLING WATER BASED ON VENDOR DESIGN REQUIREMENTS."

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Reason for design change:

Part B-I. Reasons for changes between Rev. A and Rev. 0 of the Design Document Evaluated.

1. Tag format was updated to conform with the new project standard.
2. Process streams are required on PFDs to match those used in computer simulation.
3. The system was re-designed to accommodate the potential need to send resin back to an IX column for re-elution.
4. The process streams were updated to allow resin to be sent back to an IX column for re-elution. The changes also allow the possibility for interchanging vessel functions, if required.
5. Cascading overflow was removed to prevent contamination of sampled slurry batches with contents from another vessel.
6. Process make-up liquid was added to accommodate the potential process requirement to top-up a batch of transport liquid.
7. The instrument was added to provide operational information on the solids content of slurry passing through the line.
8. There was no need to dedicate a specific pump for off-normal operations; combining the pump functions provides greater operational flexibility and reliability for continuous system availability.
9. This pump was deleted as part of re-configuration of the system, to allow return of spent resin to an IX column for re-elution.
10. The filter, housing, and accessories were not maintainable in their current location, and did not support process functionality of returning spent resin for re-elution, if required.
11. The instrument was determined to serve no purpose.
12. Emptying ejectors were added to support decontamination.
13. Slurry bypass allows the system to stop delivery to the Dewatering Container, if required, without settling resin in the bottom of a stagnant line.
14. The heater may be required to meet process requirements in the vendor package.
15. Each vessel was renamed to properly align the name with functionality.
16. The overflow routing was changed to allow operational selection of the overflow destination to prevent contamination of a sampled slurry batch.
17. The flow indicator was added to support operational information needs.
18. The secondary pump suction was added to allow decanting of clear process fluid, to concentrate slurry, or allow additional transport liquid to be fed to the IX column for resin removal, if needed.
19. Detail was added for clarity.
20. The vent line is needed to directly access the PVP stream, in order to eliminate a 300 ft. vent pipe returning to the vessels RDP-VSL-00002-A/-B/-C from the Dewatering Container cell.
21. It is anticipated that the spent resin would exceed the total radiation limits for the LAW facility.

Part B-II. Reasons for changes between Rev. 0 and Rev. 1 of the Design Document Evaluated.

B-II-1. 24590-PTF-M5N-V17T-00002

1. This note is required for permit affecting drawings.
2. Re-numbering of notes is required due to the addition of dangerous waste permit note.
3. Descriptive titles are updated for clarity and consistency with terminology used in other project documents.
4. Emptying ejectors are not required for the applicable vessels, since the vessels can be emptied via pumps.
5. The intent of the instrument is clarified to ensure that only a gamma radiation monitor is required, and not a

JK 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Reason for design change:

cesium specific radiation instrument.

6. The purpose of the instrument is clarified to ensure that flow totalization/measurement is provided in the software functional specification.
7. The relief valve and vent stream were moved for drawing simplification. No actual changes to the design were made by this depicted change.
8. The note is clarified to state exactly the requirements for the working volume. This is done to ensure that the vessels have the required capacity, when the design is finalized.

B-II-2. 24590-PTF-M5N-V17T-00010

9. The depiction of the pumps and associated instrumentation is changed to clarify numbers and locations of plant items. No actual changes to the design were made by this depiction change.
10. The intended instrument function was clarified by deletion of the superscript "TRB" and addition of the note. Previously, the "AI^{TRB}" was too specific an instrument which did not allow for the best application to be selected.

B-II-3. 24590-PTF-M5N-V17T-00017

11. The stream destination has been clarified (as final destination) to eliminate confusion of stream routing.

B-II-4. 24590-PTF-DCA-PR-02-006

12. PJMs were added as a replacement for mixing eductors, due to their higher reliability for use in black cell areas.
13. The pump was no longer needed for mixing system reliability, since the PJMs replaced the pumped mixing.
14. There is no need for the decant line, since it is not likely that the resin bed will ever settle sufficiently to allow clear liquid to be drawn off the top. Also, there is no process reason to require decantation capability.
15. There is no need for the decant line, since it is not likely that the resin bed will ever settle sufficiently to allow clear liquid to be drawn off the top. Also, there is no process reason to require decantation capability.
16. There is no need for the decant line, since it is not likely that the resin bed will ever settle sufficiently to allow clear liquid to be drawn off the top. Also, there is no process reason to require decantation capability.

B-II-5. 24590-PTF-DCA-PR-02-013

17. This change was required in order to eliminate valves in the overflow lines from CRP and TRP air-gap vessels.

B-II-6. 24590-PTF-DCA-PR-02-015

18. The utility PSW was replaced by DIW as a means to reduce risk of missing disposal requirement limits on certain contaminants likely to be found in PSW. The change from two sources to one source was made for drawing simplification. No change was made to design, since the PFD shows only streams (not pipes).
19. The utility PSW was replaced by DIW as a means to reduce risk of missing disposal requirement limits on certain contaminants likely to be found in PSW.

B-II-7. 24590-PTF-DCA-M-02-015

20. The instrument was not required for process or safety considerations. It was also determined that no such instrument was available.

B-II-8. 24590-PTF-DCA-PR-03-004

21. Design and installation of the technetium ion exchange system and supporting systems were eliminated from Bechtel scope in the revised contract. The interfaces with those systems were deleted in accordance with the Bechtel scope changes.

B-II-9. 24590-PTF-DCA-PR-03-006

22. ITS air is required for hydrogen mitigation.

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Reason for design change:

Part B-III. The following list describes reasons for changes between Rev. 0 and Rev. 1 that were not captured in previously approved design change documentation, and which were incorporated into this document:.

1. This change was required to align the two drawings.
2. This change was made to accommodate the depiction of PJMs and the PJM vent stream for each vessel as approved in the document # 24590-PTF-DCA-PR-02-006. This change does not alter the actual physical location of any vessel penetrations in any way.
3. This was done to help clarify the intent of NOTE 11.
4. These items were included in the vendor package designation to clarify their use relative to operation of equipment (in the package. This change does not require alteration of the equipment design or function. Appropriate correction was made to the referenced text.
5. The approved design change documentation for Revision 1of the 'Design Document Evaluated' was listed.
6. This change was made to make the vendor package designations consistent for both the container and the dewatering equipment packages.
7. The text was moved to clarify the intent of the NOTE.
8. The intent is to clarify that the process requirement is for fluid similar in temperature and heat capacity to "CHW" (chilled water). The actual utility requirement may change to "PCW" (Plant Cooling Water), if the vendor design provides a chiller with the dewatering equipment system package.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The design changes described above do not modify or delete any standard prescribed in the Safety Requirements Document (SRD), Volume II. The changes listed above constitute design developments, including equipment/vendor interface, and related editorial changes that have taken place between Revision A and Revision 1 of the 'Design Document Evaluated'.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The replacement of the "Resin Transport Liquid Collection Vessel", RDP-VSL-00003, with a "Spent Resin Slurry Vessel", RDP-VSL-00002-C, (see Items 3 & 4, in Part A-I above) constitutes a change in the function of an SSC as described in the PSAR. The new vessel has a working volume of 7,500 gallons as compared to the 10,000 gallons working volume of the deleted vessel. The technetium (Tc) resin removal functions for all components of the Spent Resin System (RDP) have been eliminated. The "Resin Transport Liquid Transfer Pump", RDP-PMP-00010, was deleted from the RDP System. The addition and subsequent deletion (Item 12, Part A-I, and Item 4, Part A-II-1, respectively) of emptying ejectors does not constitute a net change in the design. The PSAR (Section 2.4.18) expects emptying ejectors for vessel heel emptying in black cell vessels. However,		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

	the pumps are expected to be as effective in carrying out the heel emptying operation. This is a common issue in black cell vessel design. The remaining changes belong to one of the following categories: (i) The changes bring the design into alignment with the PSAR description. (Addition of PJMs, Item 12 in Part A-II-4; addition of ITS forced purge air, Item 22 in Part A-II-9.) (ii) The changes are not described in the PSAR. (iii) Editorial changes.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: The deletion of the "Resin Transport Liquid Collection Vessel", RDP-VSL-00003, and the "Resin Transport Liquid Transfer Pump", RDP-PMP-00010, constitutes deletion of existing SSCs as described in the PSAR. The new vessel, RDP-VSL-00002-C, involves the addition of a third SDC "Spent Resin Slurry Vessel". PJMs were added (see item 12, Part A-II-4) to the three "Spent Resin Slurry Vessels", and the structural support of the PJMs is SDC. Important-to-safety (ITS) "Forced Purge Air" was added to the design; this change was implemented to align the design with the PSAR. The remaining design changes described here do not involve any changes in classification, new items being classified, or existing items deleted as described in the PSAR.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☒	☐
	Basis: The design changes described here do impact the safety function descriptions in Chapter 4 of the PSAR. (The emphasis is on the word 'descriptions'.) The "Spent Resin Slurry Vessels", RDP-VSL-00002-A/-B/-C, should be added as "feed vessels' to the "Ultimate Overflow Vessel", PWD-VSL-00033, in Section 4.4.3.2 of the PSAR. The deletion of the "Resin Transport Liquid Collection Vessel", RDP-VSL-00003, and its replacement by a third "Spent Resin Slurry Vessel", RDP-VSL-00002-C, involves a net decrease in the material inventory. The replacement vessel, RDP-VSL-00002-C, is just one of three "Spent Resin Slurry Vessels" – with identical specifications – that is used on a rotational basis, one vessel at a time. The concerns regarding hydrogen mitigation/control did not change with the introduction of a third "Spent Resin Slurry Vessel". All remaining design changes either involve no significant affect on safety or constitute alignment of the design with the description in the PSAR.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: The design changes described here do not create a new hazard or affect the hazard or accident analysis contained in the PSAR. The design changes described here do not create a new hazard or accident scenario with a higher consequence potential than the DBEs described in the PSAR (Section 3.3.3.2) for the Ion Exchange System and related process systems. The deletion of the "Resin Transport Liquid Collection Vessel", RDP-VSL-00003, and its replacement by "Spent Resin Slurry Vessel", RDP-VSL-00002-C, (see Item 3, Part A-I above) actually leads to a decrease in the vessel (working volume) capacity, from about 10,000 gallons to 7,500 gallons. Hence, there is actually a decrease in the material-at-risk involved. The addition of PSW/DIW stream (see Item 6 in Part A-I above) does not contribute to an increase in the radiological inventory. The design change involving the addition of a line in a location close to the "Spent Resin Dewatering Container" (see Item 13, Part A-I above) should be beneficial from a safety standpoint. The addition of "PSA" utility service connections (as described in Item 22 of Part A-II-9 above) to provide forced purge air into the "Spent Resin Slurry Vessels", RDP-VSL-00002-A/-B/-C, is a positive change from a safety perspective. This change is designed for hydrogen mitigation/control, and it aligns the design with the PSAR. The addition of a heater to the resin dewatering equipment (see Item 14, Part A-I) may		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

	potentially pose a fire hazard to the system if the spent resin in the container is progressively dried out and subsequently overheated. This change, involving the addition of a heater, is part of a "Vendor Design Package", that has not been finalized as yet. An ISM meeting was held to discuss this potential fire hazard, and necessary controls to mitigate/eliminate inherent dangers will be provided to the vendor. If the addition of a heater is implemented in the final design, the Haz-Op potential associated with this change will be evaluated, and the final design of the heater will comply with safety requirements.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: The design changes described here do not impact criticality safety. The process of elution in the cesium ion exchange columns (CXP System) removes the greater part of plutonium present in the system. The spent resin that is transferred to the RDP System does not, hence, contain appreciable quantities of plutonium. The addition of a PSW/DIW stream (see Item 6, Part A-I above) does not introduce any criticality concerns, as the liquid involved is demineralized water. From a criticality safety perspective, the most significant design change described here involves deletion of the "Resin Transport Liquid Collection Vessel", RDP-VSL-00003, and it's replacement by a third "Spent Resin Slurry Vessel", RDP-VSL-00002-C. The design function of the "Resin Transport Liquid Collection Vessel" did not involve criticality concerns, in view of the extremely low radioactivity levels of the liquid content. The replacement vessel, the new "Spent Resin Slurry Vessel", is just one of three vessels - with identical specifications - that is used on a rotational basis, one vessel at a time. The concerns regarding criticality safety did not change with the introduction of a third "Spent Resin Slurry Vessel". The basic design criterion for criticality safety related to the Ion Exchange System postulates that the plutonium loading in the liquid state should not exceed 0.5 kilograms. (See "WTP Criticality Safety Evaluation Report", #24590-WTP-RPT-NS-01-001, Rev. 3.) The eluted resin slurry sent to the Spent Resin System (RDP) is expected to contain only very small amounts of plutonium that are significantly lower than the limit for criticality stated above. This assumption is based on the WTP report "Small Column Ion Exchange Testing of SuperLig® 644 for Removal of 137 Cs from Hanford Waste Tank 241-AP-101 Diluted Feed (Envelope A)", #24590-101-TSA-W000-0004-114-01, Rev. 00C. Administrative controls would prevent exceeding the TSR loading limit of 150,000 curies of radioactivity in cesium on the Ion Exchange (IX) resin bed. And, this limit would be reached before 0.5 kilograms of plutonium could be loaded on the resin.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: The changes documented here will not affect adversely exposures to radiation doses, contamination levels, or releases of radioactivity to the environment. Nonetheless, an ALARA Design Review (ADR) has been completed for the PFD associated with the Spent Resin Collection and Dewatering Process (RDP) System, # 24590-PTF-M5-V17T-00020. The ADR is contained in the document # 24590-PTF-ADR-PR-03-010, Rev. 0.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: The changes listed in this Safety Evaluation (SE) do not impact any other Authorization Basis (AB) documents. The only AB document affected by these design changes is the PSAR, "Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information", # 24590-WTP-PSAR-ESH-01-002-02, Rev. 0a. The response to OSR Review Question # PT-PSAR-019 provided additional clarification as to the design of the transport cask and the export route for the contaminated waste materials from the PTF. The design changes presented here do not affect the response.		

Safety Evaluation For Design

DR 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00020	**Rev. # 0, 1**

9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: An (additional) ISM meeting is not required for the design changes described and assessed in this Safety Evaluation (SE).		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Bihari Vaishnavi *Print/Type Name*	B Vaishnavi *Signature*	7/25/03 *Date*
Design Document Originator/ Supervisor:	Daniel Braman *Print/Type Name*	Daniel Braman *Signature*	7/25/03 *Date*

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead:	NA *Print/Type Name*	 *Signature*	 *Date*

DK 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The changes described here do not create a new DBE. The limiting/bounding accidents evaluated in the PSAR for the PTF involve process vessels and streams from the FRP and HLP Systems. The levels of radioactivity in the process vessels and piping of the RDP System considered here are several orders of magnitude lower than those evaluated in the referenced DBE accidents. The deletion of the "Resin Transport Liquid Collection Vessel", RDP-VSL-00003, and its replacement by "Spent Resin Slurry Vessel", RDP-VSL-00002-C, (see Item 3, Part A-I above) actually leads to a decrease in the vessel (working volume) capacity, from about 10,000 gallons to 7,500 gallons. Hence, there is actually a decrease in the material-at-risk involved. The addition of PSW/DIW stream (see Item 6 in Part A-I above) does not contribute to an increase in the radiological inventory, and hence does not contribute to a new DBE.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: The design changes described here will not lead to an increase in the frequency or consequences of an analyzed DBE as described in the Preliminary Safety Analysis Report (PSAR). No data are currently available regarding the frequency or the consequences of an accident associated with the potential fire hazard on account of the addition of a heater to the spent resin dewatering equipment. The frequency of occurrence for such an accident scenario is expected to be very small, based on the design layout and various parameter values (operating temperatures and resin auto-ignition temperature). The potential consequences of a resin fire in the Spent Resin System (RDP) would be bounded by those due to the DBE resin fire from IX columns in the Ion Exchange System (CXP). This conclusion follows from the significantly lower radioactivity associated with spent resin.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The design changes described and evaluated here do not result in more than a minimal decrease in the safety functions of the important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10CFR820 - *Procedural Rules for DOE Nuclear Activities*, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The design changes described here are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10CFR830 - *Nuclear Safety Management*, requires establishment and maintenance of safety		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

	bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of nuclear safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). The design changes described here are consistent with the requirements of 10CFR830 for facility safety classified SSCs. 10CFR835 - *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The design changes described here would not change the radiation protection program or challenge any requirements of 10CFR835. RL/REG-96-0006 - *Top-Level Radiological, Nuclear and Process Safety Standards and Principles*, Section 4.2.1, provides high-level statements that express DOE's expectations for the performance of nuclear safety-related activities associated with the WTP design. The proposed changes were developed in accordance with procedures that implement the top-level standards and principles. These changes are consistent with these procedures and do not change them; therefore, the design changes are in compliance with the top-level safety standards. An ISM meeting was held to discuss and evaluate the effect of the addition of a heater to the spent resin dewatering equipment. It is expected that this design change will not lead to any non-compliance with applicable laws and regulations (i.e., 10CFR820, 830, and 835) or non-conformance to top-level safety standards (i.e., DOE/RL-96-0006). Compliance with applicable laws and regulations and with top-level standards will be an important factor in determining whether the heater will be part of the final "Vendor Design Package". The final design will conform to all applicable safety requirements and conformance to applicable laws, regulations, and top-level standards.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The design changes described here do not fail to provide adequate safety. Some of the design changes will actually lead to enhanced safety. (See Item 5 in Part 1, "Safety Screening".)		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process Safety, requires an integrated-standard based safety management program for the WTP, submittal of safety documents and construction authorization requests, and meetings. This Contract Standard also provides document preparation guidance. The design changes reported here were developed in accordance with procedures that implement these contract requirements. The RDP System design changes described and analyzed here are consistent with the procedures described in the contract documents, and do not change these procedures. Hence, the design changes are in compliance with the contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The conditions of acceptance in Sections 4.3.1 (PT Facility Description) and 4.3.2 (PT facility Hazard and Accident Analysis) of the Construction Authorization Agreement		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

	(CCN 054383) are not impacted by the proposed design changes. These design changes to the RDP System are described in the first part of this document. The following DOE-ORP-OSR Question/Response is related to the RDP System: PT-PSAR-019, dealing with (a) the main design features of the transport cask, and (b) the loading process/transport path for the transport cask and contaminated materials. The design changes described and analyzed in this safety Evaluation (SE) do not impact in any way the response to the DOE-ORP-OSR-OSR question outlined above.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	JPH	7-25-03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00020	**Rev. # 0, 1**

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	0a	2.4.13.9; 2.5.10; 2.5.19; 2.5.19.1; 2.5.19.2; 3.4.2.1.2.1; 4.3.3; 4.4.3.2; Figure 2A-48; Figure 2A-49; Figure 2A-50; Table 3A-13; Table 3A-25; Table 3A-28; Table C-2, page C-8; Appendix A, pages A-106 & A-107.

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Bihari Vaishnavi	B Vaishnavi	7/25/03
☒	AB Document Custodian	Taber Hersum	Taber Hersum	7/25/03
☐	Quality Assurance			
☒	Engineering	Jerry Chiaramonte	J Chiaramonte	7-25-03
☒	Affected Area Project Manager	Bob Lawrence	B Lawrence	7/25/03
☐	Operations			
☐	Construction			

Safety Evaluation No.: 24590-WTP-SE-ENS-03-206	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00020	Rev. # 0, 1

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) — (*Signature*) — 8/11/03 (*Date*)

Attachment 6

Authorization Basis Change Notice 24590-WTP-SE-ENS-03-219, Revision 1

Safety Evaluation For Design

ISSUED BY
RPP-WTP PDC
JC 7-31-03
INIT DATE

JC 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	**Rev. # 1**
Design Document Evaluated: See Attachment "A" (2 Pages)	**Rev. # N/A**
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: PTF-P&IDs- Floorboxes and Wallboxes Deletion (Replaced with Shadow Shielding).	

1

Description of design change:

Description of design change: (Note: This ABCN supercedes 24590-WTP-SE-ENS-02-040.)

This safety evaluation assesses the impact of the following design change/improvement to several systems:

Floor and wallboxes used to reduce radiation shine paths for joggled pipe penetrations into utility service rooms are replaced with shadow shielding to protect against radiation shine paths encountered for straight pipe penetrations. A note ("Hold 1") in each of the referenced documents (see Attachment A) indicates the following:

"Pipe sleeve penetrations between occupational areas and inaccessible/remote areas (R5) shall have shadow shielding to mitigate direct radiation shine, or be joggled, as determined by Environmental and Nuclear Safety. All pipe/sleeve interfaces shall be sealed in accordance with applicable fire codes to maintain the integrity of the fire wall between areas.

These design changes are also referenced in the Preliminary Safety Screenings found in Design Input Memoranda (DIMs) for the associated P&IDs referenced in Attachment A.

NOTE: This Safety Evaluation is applicable to all PTF-P& ID's associated with the deletion of Floorboxes /Wallboxes and which are not listed in Attachment A.

1

Reason for design change:

Elimination of the joggled pipe wall and floor boxes reduces the complexity of construction methods, and leads to a more robust design involving straight pipe sections (as long as feasible). This design approach lends to an improved design and accelerates the construction schedule for the Pretreatment Facility (PTF), while maintaining the radiation protection features of the C5 processing area walls and floor.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The floor and wallboxes used to reduce radiation shine paths for joggled pipe penetrations into utility service rooms are replaced with shadow shielding to protect against radiation shine paths encountered for straight pipe penetrations. This design change does not modify or delete any standard prescribed in the Safety Requirements Document (SRD), Volume II.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR*	☐	☒
	Basis: The aforementioned design change does impact the Preliminary Safety Analysis Report (PSAR) for the PTF: Document Number 24590-WTP-PSAR-ESH-01-002-02, Rev 0a: "Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information". Sections 2.4.16.2, 4.3.1.2, and Appendix D, page D-3, are affected by the design change. The design change consists basically of replacing much of the joggled piping with straight piping. As described in the PSAR, Section 2.4.16.2, "Joggled floor and		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	Rev. # 1
Design Document Evaluated: See Attachment "A" (2 Pages)	Rev. # N/A

	wall boxes are used for pipe penetrations to reduce radiation shine paths into the utility service rooms." Shadow shielding would be used to mitigate direct radiation shine, wherever joggled piping is replaced by straight piping sections. As indicated above, the location of the SSCs is not altered as a result of the design change. Shadow shielding of straight pipe sections would replace the joggled pipe penetrations. However, the functionality is not changed, since the design involves an equivalent shielding protection provided via shadow shielding, and any seismic considerations are properly accounted for in implementing the shadow shielding. The reliability of the SSCs is not expected to be impacted as a result of this design change.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: The design changes are not expected to impact any SSC classifications or classify new items. However, a major portion of the joggled pipe wall and floor boxes described in the PSAR (see Section 2.4.16.2, 4.3.1.2) are expected to be replaced by straight piping and shadow shielding to reduce radiation streaming instead of the joggled wall and floor boxes.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☒	☐
	Basis: The system description in chapter 4 of the PSAR is impacted by the design changes. In section 4.3.1.2 the control for radiation streaming affecting the facility worker dose is the joggled pipe floor and wall boxes. The text will be revised to reflect the replacement of joggled pipe wall and floor boxes with shadow shielding for straight pipe runs between the C3 and C5 areas. The safety function of the joggled pipe wall and floor boxes will be performed by the shadow shielding in the new design. In this connection, any seismic considerations involved will be appropriately accounted for in the implementation of the shadow shielding in the changed design.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: The aforementioned design change does not create or affect the hazard or accident analysis contained in the safety analysis sections 3.4.1.11 (loss of contamination control) and 3.4.1.12.1 (direct radiation) of the PSAR. The design change involves a re-routing of the process piping, as a major portion of the joggled pipe is replaced by straight piping sections. Corresponding design changes for shielding involve replacement of the wall and floor boxes with shadow shielding structures. Any potential seismic considerations involved in the implementation of shadow shielding will be properly accounted for in the new design. These design changes would not create a new hazard or modify the existing hazards in any way. These changes do not create a new hazard, and thus, do not affect the hazard or accident analysis documented in the PSAR.		
6.	Does the change affect criticality safety?	☐	☒

Safety Evaluation For Design

DE 7/25/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	**Rev. #** 1
Design Document Evaluated: See Attachment "A" (2 Pages)	**Rev. #** N/A AB, 7/25/03

	Basis: The design changes involved in replacing joggled piping with straight piping sections, and associated changes involved in replacing wall and floor boxes with shadow radiation shielding, do not affect criticality safety in any way.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: The new shadow shielding design involves radiation protection that is equivalent to the joggled wall and floor boxes identified in the PSAR. Additionally, the implementation of the design changes for shadow shielding structures (such as an embed with kicker and the supporting wall) may involve seismic considerations. These potential seismic issues are properly accounted for; hence, there would not be any new or changed hazards. There would not be any releases of radioactivity to the environment beyond those investigated in the PSAR. An ALARA design review for the design changes has been evaluated, and is described in the following ADR documents: 24590-PTF-ADR-M-02-019, Rev 1. 24590-PTF-ADR-M-02-029, Rev 0. 24590-PTF-ADR-PR-02-002, Rev 2. 24590-PTF-ADR-M-02-006, Rev 0. Calculation 24590-PTF-Z0C-10-00007, Radiation Shielding for PT Bulge and Wall Penetrations, was revised to include shadow shielding.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: The aforementioned design change does not impact any Authorization Basis document other than the Preliminary Safety Analysis Report (PSAR) for the PT facility.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: An ISM meeting is not required as a result of the design changes that involve replacing joggled piping with straight piping sections, and correspondingly replace wall and floor boxes with shadow shielding. The only safety issues involved here are those related to proper shielding for the worker against streaming direct radiation. Properly implemented shadow shielding can provide this protection just as well as the wall and floor boxes. Furthermore, any potential seismic considerations involved in designing effective shadow shielding structures (such as an embed w/ kicker and the supporting wall) will be appropriately accounted for in the implementation of shielding in the changed design.		

Further safety review required? ☐ Yes ☒ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Andre V.Benamou *Print/Type Name*	*Signature*	7/15/03 *Date*
Design Document Originator/ Supervisor:	ROBERT E. STEDO ~~John Julyk~~ RES 7/22/03 *Print/Type Name*	*Signature* For John Julyk	7/22/03 *Date*

Safety Evaluation For Design

DE 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	**Rev. #** 1
Design Document Evaluated: See Attachment "A" (2 Pages)	**Rev. #** N/A

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead: N/A _____ _____ _____

Print/Type Name *Signature* *Date*

Safety Evaluation For Design

ac 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	**Rev. #** 1
Design Document Evaluated: See Attachment "A" (2 Pages)	**Rev. #** N/A

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The new design involves a change from joggled piping to straight piping sections, and a corresponding change in radiation shielding for workers. The latter change would consist of replacing wall and floor boxes with effective, equivalent shadow shielding. Any potential seismic considerations involved in designing shadow shielding structures (such as an embed with kicker and the supporting wall) would be properly accounted for in the changed design. Hence, the existing hazards would not be exacerbated and no new hazards would be introduced. Thus, a new DBE will not be created as a result of the design changes.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: As described in the answer to the preceding question, there would be no changes to existing hazards and no new hazards introduced as a result of implementing the design changes. The design change will provide equivalent protection for the facility worker against a direct radiation hazard. Therefore, the design change would not result in an increase in the radiological or chemical consequences of an analyzed DBE as described in the PSAR.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: As described above, the design changes considered here do not involve any increases in existing hazards or the introduction of new potential hazards. The design involves an equivalent amount of radiation protection provided through shadow shielding in lieu of joggled wall & floor boxes. It is also assumed that any potential seismic considerations involved in designing shadow shielding structures (such as an embed w/kicker and the supporting wall) would be accounted for appropriately. In summary, then, the design changes will not result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10CFR820 - Procedural Rules for DOE Nuclear Activities, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The aforementioned design change is not related to any compliance, violation, or enforcement issue, exemption from safety requirements,or reporting of supplier defective products or inaccurate or incomplete information. 10CFR830 - Nuclear Safety Management, requires establishment and maintenance of safety baes and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This		

DK 7/28/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	Rev. # 1
Design Document Evaluated: See Attachment "A" (2 Pages)	Rev. # N/A

	includes certain aspects of nuclear safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). The design change is consistent with the requirements of 10CFR830 for facility safety classified SSCs. 10CFR835 - Occupational Radiation Protection, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The design change described here does not change the radiation protection program or challenge any requirements of 10CFR835. The new shadow shielding design involves radiation protection that is equivalent to the joggled wall and floor boxes identified in the PSAR. There would not be any releases of radioactivity to the environment beyond those investigated in the PSAR. RL/REG-96-0006 - Top-level Radiological, Nuclear and Process Safety Standards and principles, Section 4.2.1, provides high-level statements that express DOE's expectations for the performance of nuclear safety-related activities associated with the WTP design. The proposed change was developed in accordance with procedures that implement the top-level standards and principles. This change is consistent with these procedures and does not change them Therefore, the design change is in compliance with the top-level safety standards. In summary, the design change does not affect any hazard or accident analyses performed and documented in the PSAR, since the new design involves an equivalent amount of shielding via shadow shielding and proper accounting of any potential seismic concerns that may arise as a result of the implementation of shadow shielding design criteria. Hence, the design change would not lead to any non-compliance with applicable laws and regulations (i.e., 10CFR820,830, and 835) or non-conformance to top-level safety standards (i.e., DOE/RL-96-0006).		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The safety function of all SSCs remains unaffected by the design change, since the design involves an equivalent amount of radiation protection, provided via the changeover from joggled wall & floor boxes to shadow shielding. It is also assumed that, if the design implementation of shadow shielding introduces any potential seismic concerns, those concerns would be dealt with appropriately. In summary, then, the design change does not fail to provide adequate safety.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process safety, requires an integrated standard-based safety management program for WTP, submittal of safety documents and construction authorization requests, meetings, and provides document preparation guidance. The design changes were developed in accordance with procedures that implement the contract requirements. The changes are consistent with these procedures and do not change them, therefore, the design changes are in compliance with the contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The conditions of acceptance in Sections 4.3.1 and 4.3.2 of the construction authorization agreement (CCN#054383) are not impacted by the proposed design change		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	**Rev. #** 1
Design Document Evaluated: See Attachment "A" (2 Pages)	**Rev. #** N/A

	from joggled piping to straight-through piping and the corresponding shielding change from wall & floor boxes to shadow shielding. The following DOE Questions/Responses are related to the design change considered in this safety evaluation: PT-PSAR-136 dealing with out-of-specification material in bulges and credible hazards in process bulges; PT-PSAR-255 dealing with shielding calculations for bulges and penetrations; PT-PSAR-279 dealing with ITS process bulges. These responses were evaluated and found to be not impacted by this design change.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:		7-15-03

Safety Evaluation For Design

AK 7/08/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-219	**Rev. #** 1
Design Document Evaluated: See Attachment "A" (2 Pages)	**Rev. #** Y N/A AB, 7/8/03

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	0a	2.4.16.2, 4.3.1.2, Appendix D, page D-3.

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Andre V.Benamou	Andre V. Benamou	7/15/03
☒	AB Document Custodian	Taber Hersum	Taber Hersum	7/15/03
☐	Quality Assurance			
☒	Engineering	Steve Garbowski/B.Voke	S. Garbowski	7/23/03
☒	Affected Area Project Manager	Bob Lawrence	Bob Lawrence	7/25/03
☒	Operations	Greg Jager	Greg J. Jager	7/22/03
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) — (*Signature*) — 7/30/03 (*Date*)

Attachment A.
List of Affected Rev.0 P&IDs

ATTACHMENT "A"

1. LIST OF AFFECTED Rev. 0 P&IDs.

1. 24590-PTF-M6-PWD-00002
2. 24590-PTF-M6-PWD-00003
3. 24590-PTF-M6-PWD-00005
4. 24590-PTF-M6-PWD-00006
5. 24590-PTF-M6-PWD-00008
6. 24590-PTF-M6-PWD-00009
7. 24590-PTF-M6-PWD-00010
8. 24590-PTF-M6-PWD-00012
9. 24590-PTF-M6-PWD-00014
10. 24590-PTF-M6-PWD-00018
11. 24590-PTF-M6-PWD-00019
12. 24590-PTF-M6-PWD-00020
13. 24590-PTF-M6-PWD-00021
14. 24590-PTF-M6-PWD-00022
15. 24590-PTF-M6-PWD-00023
16. 24590-PTF-M6-PWD-00024
17. 24590-PTF-M6-PWD-00025
18. 24590-PTF-M6-PWD-00026
19. 24590-PTF-M6-PWD-00028
20. 24590-PTF-M6-PWD-00029
21. 24590-PTF-M6-PWD-00030
22. 24590-PTF-M6-PWD-00032
23. 24590-PTF-M6-PWD-00033
24. 24590-PTF-M6-PWD-00034
25. 24590-PTF-M6-PWD-00035
26. 24590-PTF-M6-PWD-00036
27. 24590-PTF-M6-PWD-00037
28. 24590-PTF-M6-PWD-00038
29. 24590-PTF-M6-PWD-00045
30. 24590-PTF-M6-PWD-00046

31. 24590-PTF-M6-PSW-00001
32. 24590-PTF-M6-PSW-00006 (Rev.0 ~~& Rev.1~~)
33. 24590-PTF-M6-PSW-00008
34. 24590-PTF-M6-PSW-00009

35. 24590-PTF-M6-RDP-00001
36. 24590-PTF-M6-RDP-00006

37. 24590-PTF-M6-RLD-00001
38. 24590-PTF-M6-RLD-00002 through 00006

39. 24590-PTF-M6-TLP-00001

40. 24590-PTF-M6-TLP-00005
41. 24590-PTF-M6-TLP-00006
42. 24590-PTF-M6-TLP-00007

43. 24590-PTF-M6-TCP-00002

44. 24590-PTF-M6-FEP-00001
45. 24590-PTF-M6-FEP-00006
46. 24590-PTF-M6-FEP-00007
47. 24590-PTF-M6-FEP-00008
48. 24590-PTF-M6-FRP-00001
49. 24590-PTF-M6-FRP-00002
50. 24590-PTF-M6-FRP-00003
51. 24590-PTF-M6-FRP-00005
52. 24590-PTF-M6-FRP-00006
53. 24590-PTF-M6-FRP-00007
54. 24590-PTF-M6-FRP-00008
55. 24590-PTF-M6-FRP-00009
56. 24590-PTF-M6-FRP-00010

57. 24590-PTF-M6-CXP-00001
58. 24590-PTF-M6-CXP-00002
59. 24590-PTF-M6-CXP-00003
60. 24590-PTF-M6-CXP-00004
61. 24590-PTF-M6-CXP-00007
62. 24590-PTF-M6-CXP-00008
63. 24590-PTF-M6-CXP-00010
64. 24590-PTF-M6-CXP-00011
65. 24590-PTF-M6-CXP-00012
66. 24590-PTF-M6-CXP-00013

67. 24590-PTF-M6-RDP-00002

68. 24590-PTF-M6-HLP-00001
69. 24590-PTF-M6-HLP-00002
70. 24590-PTF-M6-HLP-00003
~~71. 24590-PTF-M6-HLP-00004~~
72. 24590-PTF-M6-HLP-00005
73. 24590-PTF-M6-HLP-00006
74. 24590-PTF-M6-HLP-00007
~~75. 24590-PTF-M6-HLP-00008~~
76. 24590-PTF-M6-HLP-00009
77. 24590-PTF-M6-HLP-00010

78. 24590-PTF-M6-UFP-00001
79. 24590-PTF-M6-UFP-00002
80. 24590-PTF-M6-UFP-00003
81. 24590-PTF-M6-UFP-00004 through 000117.
82. 24590-PTF-M6-UFP-00013
83. 24590-PTF-M6-UFP-000015 through 00017

NOTE: This Safety Evaluation is applicable to all PTF-P& ID's associated with the deletion of Floorboxes /Wallboxes and which are not listed in this Attachment A.

Attachment 7

Authorization Basis Change Notice 24590-WTP-SE-ENS-03-297, Revision 0

Safety Evaluation For Design

ISSUED BY
RPP-WTP PDC
JC 07-24-03
INIT DATE

SAF 7/1/05

Safety Evaluation No.: 24590-WTP-SE-ENS-03-297	**Rev. # 0**
Design Document Evaluated: 24590-BOF-DCA-CI-03-001	**Rev. # 0**
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: Removal of BOF NLD Radiation Monitor	

Description of design change:

This DCA is for removal of the inline radiation monitor and associated vortex flow and differential pressure instrumentation and valves from the pump discharge, shown on 24590-BOF-M6-NLD-00001, Rev. 1, *P&ID – BOF Non-Radioactive Liquid Waste Disposal System (CM).*

This system is non-ITS, does not present a radiological or chemical hazard, and is not required for the prevention or mitigation of any radiological or chemical hazards associated with WTP. This change has no impact on plant safety.

Reason for design change:

TEDF acceptance criteria for radioactive constituents are from ST 4502 State Discharge Permit, which references Ground Water Standards WAC 173-200-100. These levels are far below the levels detectable by inline instrumentation. Flour Hanford personnel concurred that an NLD liquid effluent radiation monitor at WTP is not required for the NLD pipeline per ICD 05 - *Interface Control Document for Nonradioactive Nondangerous Liquid Effluents* (CCN: 053440). Feeds to the NLD tank from plant facilities are monitored or controlled to prevent radioactive contamination from entering the tank.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The above change does not propose any changes to the Codes and Standards in the SRD.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: This radiation monitor is described in the BOF PSAR and is now being deleted. No other AB documents are affected.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: This radiation monitor is described in the BOF PSAR and is now being deleted. No other AB documents are affected.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: This monitor and associated valves and instruments are not important to safety, and therefore are not discussed or described in Chapter 4 of the PSAR. In addition, removal of the instrumentation does not alter the function or performance of any ITS SSCs that are discussed or described in Chapter 4.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒

Safety Evaluation For Design

SAT 7/1/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-297	**Rev. # 0**
Design Document Evaluated: 24590-BOF-DCA-CI-03-001	**Rev. # 0**

	Basis: This monitor was to prevent radioactive material from being sent to TEDF, but other upstream controls prevent this for any potentially contaminated feed streams. The levels of radioactivity potentially entering the NLD tank is very low, and is not considered a safety hazard that warrants ITS controls. This monitor and valves were not credited in any accident analysis.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: This discharge point has no impact on the potential for criticality, since it is downstream of the plant process stream and should contain essentially no radioactive inventory.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: No exposure to or releases of radioactive material from the BOF NLD system have been postulated (Section 3.3.3.9 of the BOF PSAR). As indicated above, the inline instrumentation cannot detect the levels of contamination that are allowed in the NLD stream. Other controls are relied upon to ensure that the contamination levels are acceptable for transfer of the stream to TEDF. Therefore, removal of the instrumentation does not alter any postulated exposure to or release of radioactive materials.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: There is no identified impact to the ISMP, RPP, nor the QAM.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: This change does not add any hazards nor affect any accident analysis, and is consistent wth the SRD. The changes to the PSAR do not affect any previous ISM results, and therefore no ISM meeting is required..		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Scott Johnson *Print/Type Name*	 *Signature*	7/1/03 *Date*
Design Document Originator/ Supervisor:	Russell Wyman *Print/Type Name*	 *Signature*	7-1-03 *Date*

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead:	N/A *Print/Type Name*	*Signature*	*Date*

Safety Evaluation For Design

SAT 7/1/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-297	**Rev. # 0**
Design Document Evaluated: 24590-BOF-DCA-CI-03-001	**Rev. # 0**

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

	REGULATORY	YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: There are no new hazards introduced, new source terms, changes in radioactive inventories, or changes to release mechanisms by this change, and no impact on existing DBE analysis.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: There are no DBEs or DBE analysis associated with the NLD system, so this change does not affect any of the analyzed DBEs in the PSAR.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: This system is non-ITS, and is not credited for performing any safety functions.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10 CFR 830 – Nuclear Safety Management, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of technical safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). This change does not involve any safety classified SSCs, and therefore does not affect this regulation. 10 CFR 835 – Occupational Radiation Protection, establishes rules with regard to radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from DOE activities. These changes to the WTP systems, do not change the radiation protection program or challenge any requirements of 10 CFR 835. RL/REG-96-0006 – Top-Level Radiological, Nuclear and Process Safety Standards and Principles, section 4.2.1 provides high-level statements that express DOE's expectations for the performance of safety-related activities associated with WTP design. The proposed changes were developed in accordance with procedures that implement the top-level standards and principles. They are consistent with these procedures and do not change them, and therefore are in compliance with them. 10 CFR 820 – With respect to DOE Nuclear Activities, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. This change is not related to any compliance, violation, or enforcement issue, exemption from safety requirements, reporting of supplier defective products, or inaccurate or incomplete information.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: This change does not adversely affect the safety of the plant.		

Safety Evaluation For Design

SAT 7/1/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-297	**Rev. # 0**
Design Document Evaluated: 24590-BOF-DCA-CI-03-001	**Rev. # 0**

6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process Safety, requires an integrated standard-based safety management program for WTP, submittal of safety documents and construction authorization requests, meetings, and provides document preparation guidance. The proposed changes were developed in accordance with procedures that implement the contract requirements and are, therefore, consistent with these procedures and do not change them. Thus, these changes are in compliance with the contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: There have not been any commitments or other descriptions identified in the AB or authorization agreement that are affected by this change. As stated above in the reason for design change, Flour Hanford personnel concurred that an NLD liquid effluent radiation monitor at WTP is not required for the NLD pipeline per ICD 05 - *Interface Control Document for Nonradioactive Nondangerous Liquid Effluents* (CCN: 053440).		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	[signature]	7/1/03

P.L.

Safety Evaluation For Design

7/1/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-297	**Rev. # 0**
Design Document Evaluated: 24590-BOF-DCA-CI-03-001	**Rev. # 0**

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; Balance of Facility Specific Information	24590-WTP-PSAR-ESH-01-002-05	0	2.9.6; 3.3.3.9

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Scott Johnson		7/1/03
☒	AB Document Custodian	Carl Ortiz ~~Pete Lowry~~ P.L. 7/2/03	Carl Ortiz	7/23/03
☐	Quality Assurance			
☒	Engineering	Ted Stuenkel	OZ Stuenkel	7/1/03
☒	Engineering	Paul Kelly	Paul Kelly	7/1/03
☒	Engineering	Steve Ketola	Steve Ketola	7/1/03
☐	Affected Area Project Manager			
☐	Operations			
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) — K. Klein / F. Bennett (*Signature*) — 7/23/03 (*Date*)

Attachment 8

Authorization Basis Change Notice 24590-WTP-SE -ENS-03-307, Revision 0

Safety Evaluation For Design

ISSUED BY RPP-WTP PDC INIT 8/7/03 DATE

ok 8/4/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	**Rev. # 0 &1**
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: Design Improvements to PFD's (Rev. 0 & Rev.1) - PWD & RLD Systems.	

Description of design change: Note: **This Safety Evaluation supercedes ABCN # 24590-WTP-ABCN-ENS-02-040**

This safety evaluation assesses the impact of the following design changes/improvements to the PWD & RLD- PFD's Systems:

1) PFD/Drawing Number: 24590-PTF-M5-V17T-00022001, Rev. 0 only

(i) The drain from reagents bulge PVP-BULGE-00001/00002 was removed.

(ii) UFP-VSL-00062A/B/C is called out UFP-VSL-00061A/B/C in page 2-41 of PSAR. This typo has been already corrected and would not be addressed in this safety evaluation.

2) PFD/Drawing Number: 24590-PTF-M5-V17T-00022002, Rev. 0 & Rev. 1.

(i) The Rev 0 and Rev 1 of this drawing involved change in 'Pumped LAB drains & flushes' from LAB vessel LAB-RLD-VSL-00162A/B to LAB vessel LAB-RLD-VSL-00165. These drains & flushes discharge into the Plant Wash Vessel, PWD-VSL-00044, or the Ultimate Overflow Vessel, PWD-VSL-00033. The Rev A & Rev B of the LAB drawing LAB-00029 only show LAB Vessel 165 discharging into PTA Vessels 33 and 44. The LAB vessels 162A/B were combined into one single vessel and given a new tag identification number RLD-VSL-00165.

(ii) Diplegs were added to the following flows/streams:

(a) C3 overflows/drains;
(b) Contaminated Condensate Drain from SCW;
(c) Drains from Bulges;
(d) Drains from Leak Detection Pots;
(e) Drain for HLW plant Wash from vessel HLW-RLD-VSL-00008;
(f) Treated LAW Transfer Line Drain ;
(g) LAW SBS Transfer Line Drain;
(h) C5 overflows from only three vessels (PVP-SCB-00002, PVP-VSL-00001, PJV-VSL-00002) will have individual diplegs. (Remaining C5 overflows & all C5 Drains are not dipped.)

Note: The number and distribution of diplegs between items (a) – (g) above are not identified in the drawing.

(iii) Active effluents were deleted from the Plant Wash Vessel, PWD-VSL-00044, and added to the Alkaline Effluent Vessels, RLD-VSL-00017A & RLD-VSL-00017B, from the following tank:

(a) BOF-NLD-TK-00001

The following change in the design constitutes a process stream re-routing change:

(iv) The vessel RLD-VSL-00001 was eliminated altogether between the vessels HDH-VSL-00003 and PWD-VSL-00043. This change is documented in the document 24590-HLW-DCA-PR-02-010. The function previously assigned to the vessel RLD-VSL-00001 is now performed by the vessel HDH-VSL-00003. The capacity of the latter vessel is expected to be increased substantially in order to achieve this re-routing change.

(v) Vessels HLP-VSL-00027C/D were deleted and replaced with HLP-VSL-00022 & HLP-VSL-00028. This change was evaluated in 24590-WTP-SE-ENS-03-185 and DOE Question/Response PT-PSAR-256 and will not be addressed in this safety evaluation.

3) PFD/Drawing Number: 24590-PTF-M5-V17T-00022003, Rev. 0 & Rev. 1

(i) Spent reagents were added to the Alkaline Effluent Vessels, RLD-VSL-00017A & RLD-VSL-00017B, from the following vessels:

(a) CRP-VSL-00001

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	Rev. # 0 &1

Description of design change: Note: This Safety Evaluation supercedes ABCN # 24590-WTP-ABCN-ENS-02-040

(b) TRP-VSL-00007

(ii) Active effluents were deleted from the Plant Wash Vessel, PWD-VSL-00044, and added to the Alkaline Effluent Vessels, RLD-VSL-00017A & RLD-VSL-00017B, from the following tank:

(a) BOF-NLD-TK-00001

(iii) Effluent discharge into vessel RLD-VSL-00017A from the sump RLD-SUMP-00027 was replaced by effluent discharge from the sump RLD-SUMP-00003.

This is not a design change. This is only a change in the name of the same sump from RLD-SUMP-00027 to RLD-SUMP-00003, as the Rev 0 and Rev 1 of PFD # 24590-PTF-M5-V17T-00022003 show identical location and other information for the sump. The only change is in the designator - 00027 was changed to 00003.

(iv) The Low Active Effluent (from vessels RLD-VSL-00017A/B) was previously discharged into the vessel RLD-VSL-00006A/B.–In the new design, it discharges into tank RLD-TK-00006A/B.

This is not a design change. It is simply a change in designation of containers from vessels to tanks. This change is further discussed below under item 4). These containers were all along considered to be outdoor storage units, and not pressure vessels. The name change from vessels to tanks is, therefore, appropriate.

4) PFD/Drawing Number: 24590-PTF-M5-V17T-00022004, Rev. 0 only

(i) The vessels RLD-VSL-00006A & RLD-VSL-00006B were reclassified as tanks and , accordingly renamed RLD-TK-00006A & RLD-TK-00006B, respectively.

This change does not constitute a design change. It amounts to a re-alignment of BNFL and Bechtel nomenclatures, as the proper (WTP/Bechtel) naming convention was not captured in "Version 0" of this PFD. The two containers were all along intended to be outdoor storage containers ("tanks"), rather than indoor dynamic process containers.

(ii) Per DCA 24590-PTF-DCA-PR-02-004, the overflow from RLD-TK-0006A/B was routed to the local sump instead of the ultimate overflow vessel PWD-VSL-00033.

Reason for design change:

1) PFD/Drawing Number: 24590-PTF-M5-V17T-00022001, Rev. 0

(i) The bulges were eliminated as a design improvement because the pH meters inside the bulges were deleted, therefore, a hazard was eliminated.

2) PFD/Drawing Number: 24590-PTF-M5-V17T-00022002, Rev. 0 &Rev.1

(i) This change involved combining two vessels into one single vessel. This design change is a design improvement.

(ii) The Rev 0 of this drawing already appeared to include most of the diplegs indicated . However, the "Notes" in this drawing revision do not provide appropriate details. Greater details were provided in Rev 1

DK 8/4/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-307	**Rev. # 0**
Design Document Evaluated:	24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	**Rev. # 0 &1**

Reason for design change:

of the PFD. Diplegs are a design improvement, as they prevent splashing and subsequent aerosols from radioactive materials. Hence diplegs reduce risk of contamination and radioactive release. They also provide ventilation seal between C3 and C5 areas. Individual diplegs were added for PVP-SCB-00002, PVP-VSL-00001 and PJV-VSL-00002 to prevent a potential for off-gases to short circuit the PVP System. This short circuit is not considered a hazard. This change does not involve a safety issue, but rather it involves an environmental concern which is resolved by the addition of diplegs.

(iii) This design change was made for design improvement & process optimization.

(iv) This change is not considered a function change for this PTF document, since HLW facility vessel RLD-VSL- 00001 became expendable after the design capacity/volume of HLW vessel HDH-VSL-00003 was increased to approximately the same value as RLD-VSL-00001. This change is discussed in DCA # 24590-HLW- DCA-PR-02-010, Rev 0/Rev 1/Rev 2 and in DIM # 24590-HLW-M6I-RLD-00001, Rev. 0.

3) PFD/Drawing Number: 24590-PTF-M5-V17T-00022003, Rev. 0 &Rev. 1

(i) This design change was made so that the interface requirements between the WTP and the Treated Effluent Disposal Facility (TEDF), as described in ICD 05, were properly maintained. The major design consideration here was to maintain a stream pH value within the limits of 6.5 and 8.5 for acceptance by TEDF. The 0.5 M HNO3 comes from the 0.5 M Nitric Acid Head Tank (NAR-TK-00007) and has a pH of 0.3. The 0.25 M NaOH is made within the Fresh Resin Addition Vessels CRP-VSL-00001 & TRP-VSL-000007 from the Demineralized Water Head Tank DIW-TK-00001 and from holding Tank SHR-TK-000004. Therefore, the spent reagents will need to be directed to the alkaline effluent vessels RLD-VSL-00017A/B in the RLD system. Greater details regarding the rationale for this design change are provided in the DCA # 24590-PTF-DCN-PR-02-012, Rev. 0.

(ii) This design change was implemented so that if the NLD tank does not meet TEDF requirements, the material would be routed to the RLD system and then discharged directly to the LERF/ETF facility. As a backup, in the event that LERF/ETF requirements are not met, the design change would enable the routing from RLD system into the TLP system and only go to the backend evaporator at PT. Further details about the design change are provided in the DCN #24590-PTF-DCN-PR-02-003, Rev. 0.

(iii) This is a change in re-naming of sumps, and not a design change.

(iv) This is not a design change. It constitutes appropriate re-designation of an outdoor storage container as a tank, rather than a (pressure) vessel.

4) PFD/Drawing Number: 24590-PTF-M5-V17T-00022004, Rev. 0 .

(i) This is not a design change. It constitutes proper re-classification of outdoor storage containers as "tanks", rather than as "vessels".

(ii) The overflow line was routed to the local sump because the line size was too big (12 inch.) to fit going into vessel PWD-VSL-00033 and the content of the overflow line was low radioactive drainage.

Safety Evaluation For Design

8/4/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	**Rev. # 0 &1**

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The design changes listed above were implemented to enhance process optimization. Certain changes described involved renaming of containers and sumps, as deemed appropriate for purposes of process streamlining. Therefore, the design changes listed above do not modify or delete any standard prescribed in the Safety Requirements Document (SRD), Volume II.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The design changes do impact the PSAR for the PTF. The following parts of the "Preliminary Safety Analysis Report to Support Construction Authorization: PT Facility Specific Information", document # 24590-WTP-PSAR-ESH-01-002-02, Rev 0a, are impacted by the design change: Sections 2.5.15.1, 2.5.15.2,2.5.15.3, 2.5.15.4, 2.5.16, ,2.5.16.2, and Table 3A-1. Most of the design changes impact the location of the SSCs, primarily via re-routing of process streams for process optimization or for conformance to TEDF and LERF/ETF requirements. In some cases, diplegs were either added as part of the design change or documented via "Notes".		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☐	☒
	Basis: There has been an appropriate re-classification of outdoor storage containers in the RLD System from vessels to tanks, but these storage containers are not described in the PSAR. The RLD collection vessel RLD-VSL-00001 was eliminated altogether for process optimization. None of these changes have any credited safety function. There are no new items being classified or a change in classification, or existing ITS items deleted as described in the PSAR.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: The SSC's associated with the above design changes are not credited safety functions in chapter 4 of the PSAR. The addition of diplegs to the design improves safety, as splashing and aerosolization of discharged streams is prevented or minimized. However, this benefit is not a credited safety function in the PSAR. The addition of new streams to the Alkaline Effluent Vessels would lead to a dilution of radioactivity. The addition of		

Safety Evaluation No.:	24590-WTP-SE-ENS-03-307 **Rev. # 0**
Design Document Evaluated:	24590-PTF-M5-V17T-00022001/00022002/00022003/00022004 **Rev. # 0 &1**

	spent reagents to these vessels leads to increases in chemical activity. However, the molarity and concentration involved are significantly below those investigated for bounding accident analysis in the PSAR section 3.4.1.9. None of these changes have a credited safety function in chapter 4 of the PSAR.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: The design changes do not create any new hazards and do not affect the accident analysis contained in the PSAR. The addition of diplegs leads to a substantial reduction of hazards due to splashing and aerosolization of radioactive wastes. The addition of new streams to the Alkaline Effluent Vessels would lead to a dilution of radioactivity. The addition of spent reagents to these vessels leads to increases in chemical activity. However, the molarity and concentration involved are significantly below those investigated for bounding accident analysis in the PSAR. The addition of spent reagents to the Alkaline Effluent Vessels, RLD-VSL-00017A/B, would lead to a dilution of radioactivity, but would add caustic, nitric acid, and demineralized water. The spent reagents have a molarity of 0.5, while the bounding accident analysis for chemical consequences involves a molarity of 12.2 and 72% concentration. (Refer to DCN's # 24590-PTF-DCN-PR-02-012/003.) The addition of active effluent from the BOF NLD System would lead to a dilution of activity, since these streams involve very low radioactivity levels. These design changes do not impact any of the bounding accidents evaluated in the PSAR section 3.4.1.9. None of these changes have a credited safety function in Chapter 4 of the PSAR.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: The aforementioned design changes described do not affect criticality safety of the systems involved. These changes do not have a significant concentration of radionuclides to affect criticality. The impacts on criticality safety from the proposed changes are unchanged from those described in Chapter 6 of the PSAR.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: A generic ALARA review has been done for all revisions of the PFDs described here, and it is contained in the following ADR document: 24590-PTF-ADR-PR-02-002 The proposed changes described here for the PWD and RLD Systems of the PTF, would not lead to greater radiation doses, contamination levels, or radioactivity releases to the environment. Some of the design changes (addition of diplegs and dilution of radioactivity in streams) would lead to a lowering of the potential for radioactive exposure and contamination. A class of design changes (addition of spent reagents) would lead to an increased chemical activity.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: The design change does not impact any Authorization Basis (AB) document other than the Preliminary Safety Analysis Report (PSAR) for the PTF, 24590-WTP-PSAR-ESH-01-002-02, Rev 0a.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒

Safety Evaluation For Design

2K 8/4/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	**Rev. # 0 &1**

Basis: The design changes described here for Rev 0 and Rev 1 of the referenced PFDs for PTF do not require an ISM meeting. The impacts assessment, including any new hazards, have been evaluated in the associated DCA's/DCN"S: 24590-PTF-DCN-PR-02-003, 24590-PTF-DCN-PR-02-012, 24590-PTF-DCA-PR-02-004, 24590-HLW-DCA-PR-02-010.

Further safety review required? ☐ Yes ☒ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

	Print/Type Name	Signature	Date
Safety Evaluation Preparer:	Andre V.Benamou	Andre V. Benamou	7/21/03
Design Document Originator/ Supervisor:	Ed Strieper		7/28/03

Only required for screenings requiring NO ABCN or ABAR:

	Print/Type Name	Signature	Date
H&SA Lead: WP	N/A		

9/14/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	**Rev. # 0 &1**

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

	REGULATORY	YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The new design involves introduction of more diplegs, elimination of a RLD System vessel, replacement with an adequately larger existing vessel, addition of spent reagents to Alkaline Effluent Vessels, re-routing of BOF RLD System active effluents from the Plant Wash Vessel to the Alkaline Effluent Vessels, and appropriate re-classification and renaming of vessels and sumps. None of these design changes were determined to lead to new or additional radiological hazards, increases in radiological releases, or greater radiation hazards. The addition of spent reagents will lead to increased chemical activity; however, the molarity and concentrations involved are considerably below those investigated and reported in the PSAR for the bounding chemical consequences.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: As described under the "Basis" for the preceding question (Question 1 above), the design changes would not lead to increased radiological, radiation, and chemical consequences. New chemical inventory (via spent reagents) would be added to the Alkaline Effluent Vessels, but the resulting molarity and concentration levels are far below those analyzed and documented in the PSAR for the bounding chemical consequences.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The design changes would not lead to a decrease in the performance of safety functions for any SSC. The addition of diplegs would actually lead to an enhancement of the safety function performance of the affected SSCs. The addition of spent reagents to the Alkaline Effluent Vessels would lead to increased chemical inventory for these vessels. However, the molarity and concentration of the added reagents is very low and substantially below the levels for which bounding chemical consequences have been evaluated in the PSAR.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10CFR820 - *Procedural Rules for DOE Nuclear Activities,* sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The design changes described here are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10CFR830 - *Nuclear Safety Management,* requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of nuclear safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). The design changes described here are consistent with the requirements of		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	Rev. # 0 &1

	10CFR830 for facility safety classified SSCs. 10CFR835 - *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The design changes described here would not change the radiation protection program or challenge any requirements of 10CFR835. RL/REG-96-0006 - *Top-Level Radiological, Nuclear and Process Safety Standards and Principles*, Section 4.2.1, provides high-level statements that express DOE's expectations for the performance of nuclear safety-related activities associated with the WTP design. The proposed changes were developed in accordance with procedures that implement the top-level standards and principles. These change are consistent with these procedures and do not change them Therefore, the design changes are in compliance with the top-level safety standards. In summary, the design changes reported here would not lead to any non-compliance with applicable laws and regulations (i.e., 10CFR820,830, and 835) or non-conformance to top-level safety standards (i.e., DOE/RL-96-0006).		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The design change involving addition of diplegs would enhance the safety function of the affected SSCs. Some of the design changes involve reduced radiological concentrations as a result of dilution and hence, would lead to a decrease in the potential for radiological consequences. Other design modifications would virtually lead to no changes in the radiological inventory. The addition of spent reagents to the Alkaline Effluent Vessels would lead to an increase in the chemical inventory of these vessels. However, as noted in the Part I question 5 basis statement, the molarity and concentrations of these hazardous chemicals is far below those analyzed and documented in the PSAR for the limiting or bounding chemical consequences.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process Safety, requires an integrated standard-based safety management program for WTP, submittal of safety documents and construction authorization requests, meetings, and provides document preparation guidance. The design changes were developed in accordance with procedures that implement the contract requirements. The changes are consistent with these procedures and do not change them; therefore, the design changes are in compliance with the contract		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	Rev. # 0
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	Rev. # 0 &1

	requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The conditions of acceptance in Sections 4.3.1 (PT Facility Description) and 4.3.2 (PT Facility Hazard and Accident Analysis) of the Construction Authorization Agreement (CCN 054383) are not impacted by the proposed design changes, as described in Part 1 of this document. The following DOE Questions/Responses are related to the design changes were considered and reviewed for this safety evaluation: **PT-PSAR-004** dealing with the Alkaline Effluent Vessels (RLD-VSL-00017A/B); **PT-PSAR-013** dealing with the Ultimate Overflow Vessel (PWD-VSL-00033) and the HLW Effluent Transfer Vessel (PWD-VSL-00043); **PT-PSAR-278** dealing with the Alkaline Effluent Vessels (RLD-VSL-00017A/B). Modification or Revision of these Q/R's is not required. In conclusion, the design changes described above do not result in an inconsistency with other commitments.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	[signature]	7-28-03

Safety Evaluation For Design

8/4/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-307	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M5-V17T-00022001/00022002/00022003/00022004	**Rev. # 0 &1**

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report To Support Construction Authorization. PT facility specific information.	24590-WTP-PSAR-ESH-01-002-02	0a	2.5.15.1, 2.5.15.2 , 2.5.15.3, 2.5.15.4, 2.5.16, 2.5.16.2, and Table 3A-1.

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Andre V. Benamou	Andre V. Benamou	7/23/03
☒	AB Document Custodian	Taber Hersum	Taber Hersum	7/24/03
☐	Quality Assurance			
☒	Engineering	~~Bob Vuke~~ S. GRABOWSKI 7/31/03		7/31/03
☒	Affected Area Project Manager	Bob Lawrence Danny Williams FOR	Danny E Williams	7-31-03
☒	Operations	Greg Jager		7/29/03
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None	N/A		

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 8/5/03 (*Date*)

Attachment 9

Authorization Basis Change Notice 24590-WTP-SE-ENS-03-346, Revision 0

Safety Evaluation For Design

ISSUED BY
BPP-WTP PDC
JC 8-5-03
INIT DATE

Safety Evaluation No.: 24590-WTP-SE-ENS-03-346	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00003	**Rev. # 0**
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: P&ID-PTF Cesium Nitric Acid RecoveryUtility Services - PSA Rack	

Description of design change:

Note: Various valves and strainers have been relocated, added, or removed to improve and ensure system isolation capability and general operability. None of these changes impact system reliability or diminish safety. None of these changes impact text descriptions or safety analysis as described in the AB. Changes involving designators of valving/strainers/floorboxes/etc, and general drawing layout detail were judged as not requiring safety evaluation.

The changes that are evaluated herein are those which apply to deletion of the off-sheet connector "ITS Air Train A", deletion of ejectors, and notes related to quality and/or safety classifications.

1. Grid H2-H1, Note 4 was changed from "All pipework and equipment downstream of the last wye strainer are quality level - 1 and seismic category - 1 unless otherwise noted." to "All pipework and equipment associated with the pulse jet ventilation system (PJV) are quality level QL-2 and seismic category SC-II unless otherwise noted."
2. Grid F2-F1, added Note 10, "All systems, structures, and components on this drawing are commercial grade and seismic category SC-III, unless otherwise noted"
3. Grid D8, deleted off-sheet connector "ITS Air Train A" (PTF-M6-PSA-00046 A4)
4. Grid C4, deleted ejectors CNP-EJCTR-00019 & CNP-EJCTR-00020

Reason for design change:

1. Clarity
2. Clarity
3. CNP-VSL-00003 & CNP-EVAP-00001 only require H2 purging (correctly shown in PSAR Section 4.3.3) but conflicts with the information shown in Table 3A-25, which states that these vessels require both ITS Purge and Mixing. CNP-VSL-00003 does have pulse jet mixers, but this vessel contains Cs concentrate/eluate with less than 2% solids. Mixing for CNP-VSL-00003 is used only for sampling; no ITS mixing is required.
4. The piping layout was cumbersome and did not function properly; deleted ejectors were unnecessary spares.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: None of the design changes modify or delete a standard prescribed in the SRD.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The ITS Air Train A off-sheet connector was deleted. The changes do not alter the location, function, or reliability of an SSC as described in the AB. See Reason for Design Change No. 3. The change is a correction rather than a design change.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☐	☒
	Basis: No changes in classification result from these design changes, nor are new items being classified. These changes do not alter or delete any of the seismic, safety, or quality classifications as described in the PSAR.		

Safety Evaluation For Design

C.I. 6-26-03

F03

Safety Evaluation No.: 24590-WTP-SE-ENS-346	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00003	**Rev. # 0**

4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: The design changes do not affect the safety function descriptions in Chapter 4 of the PSAR. Section 4.3.3 correctly describes CNP-VSL-00003 and CNP-EVAP-00001 H2 purging requirement while Table 3A-25 incorrectly requires both ITS Purge and Mixing. The ejectors being deleted are not described in the PSAR.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: The design changes do not create a new hazard or affect a hazard or accident analysis in the PSAR. Table 3A-25 incorrectly requires both ITS H2 Purge and Mixing for CNP-VSL-00003 and CNP-EVAP-00001 where only Purging is required. See Reason for Design Change No. 3 P.L. 7/29/03		
6.	Does the change affect criticality safety?	☐	☒
	Basis: The design changes do not involve or impact any fissile material, and do not affect criticality safety.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: The design changes do not have the ability to affect exposure to radiation (dose), contamination levels, or releases of radioactivity to the environment. The change does not alter the evaluation previously completed for the ADR, 24590-PTF-ADR-M-02-45.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: Other AB documents were reviewed and it was determined that these design changes have no impact on other AB documents.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: The design changes do not impact the function of the CNP system and do not impact current hazards analyses as detailed in the PSAR. There is no need for an ISM meeting to evaluate these changes.		

Further safety review required? ☐ Yes ☒ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

	Print/Type Name	Signature	Date
Safety Evaluation Preparer:	J. F. Henderson	JOHN F HENDERSON	6-26-03
Design Document Originator/ Supervisor:	CHARLES IZAOR	Charles Izaor	6-26-03
Only required for screenings requiring NO ABCN or ABAR: H&SA Lead: WP	J. Hinckley		6-26-03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-346	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00003	**Rev. # 0**

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: These design changes neither create a new DBE nor change an existing DBE.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: None of the design changes affect an analyzed DBE as described in the Safety Analysis Report.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The ejectors being deleted are not credited with a safety function. The deletion of the ITS Air Train A off-sheet connector and subsequent correction of PSAR Table 3A-25 eliminates incorrect requirement of H2 Mixing for CNP-VSL-00003 and CNP-EVAP-00001. Therefore, no decrease in the safety functions of ITS SSCs or change to how a SDC SSC meets its respective safety function results from these design changes.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: These design changes are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. The design changes are consistent and in compliance with the requirements of 10 CFR 820, 830, and 835 and with top-level safety standards.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: None of the changes cause a reduction in safety, but rather improve it through either improved process flow and/or improved clarity on the P&ID, or correction an inconsistency in the PSAR.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process Safety, requires an integrated standard-based safety management program for WTP, submittal of safety documents and construction authorization requests, meetings, and provides document preparation guidance. The proposed changes were developed in accordance with procedures that implement the contract requirements. They are consistent with these procedures and do not change them. Therefore, these changes are in compliance with the contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The only inconsistency is that found in PSAR Table 3A-25, which is inconsistent with the text in Section 4.3.3 re H2 Purge of CNP-VSL-00003 and CNP-EVAP-00001. The specific change relating to this discussion corrects this inconsistency. None of the design		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-346	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00003	**Rev. # 0**

	changes result in an inconsistency with other commitments and descriptions contained in the AB.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	JH R. L.	6-26-03 7/29/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-346	Rev. # 0
Design Document Evaluated: 24590-PTF-M6-CNP-00003	Rev. # 0

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	0	Table 3A-25

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	JOHN F. HENDERSON	[signature]	6-26-03
☒	AB Document Custodian	TABER HERSUM	[signature]	6/26/03
☐	Quality Assurance			
☒	Engineering	S. GRABOWSKI ~~Bob Voke~~	[signature]	6/26/03
☒	Affected Area Project Manager	Bob Lawrence	[signature]	6/30/03
☒	Operations	Greg Jager	[signature]	7/14/03
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (Print/Type Name) [signature] (Signature) 7/31/03 (Date)

Attachment 10

Authorization Basis Change Notice
24590-WTP- SE-ENS-03-433, Revision 0

Safety Evaluation For Design

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	**Rev. #** 0
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	**Rev. #** 0
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: HLW Transfer Hatches, Hatch Drives, Hatch Pushrod Assemblies, and Floor Penetration Liners	

Description of design change:

Three through wall liners, one for the drive and two for proximity switch push-rods were in the design for the HLW transfer hatches. This configuration has been eliminated in the new design. For two hatches (RWH-HTCH-00001 Cask Transfer Hatch and RWH-HTCH-00004 Drum Transfer Hatch), all through-wall functions for the drives and proximity switches have been moved in-cell. For nine hatches, a single push-rod has been placed in the center of the through-wall drive shaft eliminating the two liners for the through-wall proximity switches. Also, three extension spool pieces were eliminated. These changes are described in DCA 24590-HLW-DCA-M-03-015. In addition to the DCA changes, certain hatches (HEH-HTCH-00002 Cask Export Hatch, HEH-HTCH-00004 Canister Storage Cave Import Hatch, and HRH-HTCH-00002 Clean Canister Import Hatch) are designed with an engineered air gap adjustable to a <1/4" gap instead of sealed as described in the PSAR. This change to a nominal 1/8" is acceptable to the HVAC group.

Reason for design change:

These design changes more effectively meet requirements and reduce cost. Elimination of through-wall liners uses ALARA principles and improves radiation safety since fewer through-wall liners reduce the probability of leakage and shine. The three hatches with engineered air gaps instead of sealed are described as SDC for confinement and were erroneously described in the PSAR as sealed.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: There are no modifications or changes to any standard prescribed in the Safety Requirements Document (SRD). The standards in the specification are consistent with those in the SRD.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☐	☒
	Basis: The PSAR discusses hatches, positional switches, and interlocks but does not include specific design details regarding liners, switches, or through-wall penetrations. However, PSAR Section 4.3.3.2 (as amended by 24590-WTP-ABAR-ENS-03-007) preliminarily describes three hatches to be designed as sealed without specifying the seal tolerance for the metal to metal seal design. These hatches are HRH-HTCH-00002 (Clean Canister Import), HEH-HTCH-00002 (Cask Export Hatch), and HEH-HTCH-00004 (Canister Storage Cave Import). Note that the safety evaluation for the ABAR considered substitution of HEH-HTCH-00002 for HEH-HTCH-00003 as the sealed hatch. During this safety evaluation a <1/4" gap design was erroneously described as sealed; although, the 0"-2" adjustable gap design is retained for all hatches. A PSAR AB change is needed to clarify that the three hatches have a small air gap (nominal 1/8") and that the design will remain at 0"-2" adjustable air gap. ADR 24590-HLW-ADR-M0-01-001 and the HVAC group have confirmed the acceptability of this design. PSAR Section 4.3.3.2, Paragraphs 2, 7, and 9, and Section 4.4.1.2, Paragraph 1, describe a hatch seal. These references to "seal" will be clarified as "an engineered air gap adjustable to a nominal 1/8" (i.e., <1/4").		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	Rev. # 0
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	Rev. # 0

3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☐	☒
	Basis: There are no changes in SSC classification, new SSCs being classified, or existing SSCs deleted that were described in the PSAR. No SSCs have been reclassified to or from ITS.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☒	☐
	Basis: The safety function of the hatches is to provide radiation shielding and air in-bleed from areas of lower contamination into areas of higher contamination. These safety functions are unchanged by implementation of the design changes. The additional safety function of the three hatches identified as "sealed" in the PSAR is to provide confinement and in conjunction with the C5 ventilation system, prevent consequences to the facility worker above the SRD standards. This safety function could be considered changed by the 1/4" gap on the three subject hatches and should be evaluated.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: The hazards and DBE analysis in the PSAR regarding direct radiation and loss of contamination control DBEs are not adversely affected by these changes.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: These changes do not alter any of the factors that could affect criticality and are consistent with the previous criticality analysis.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: Elimination of liners improves radiation safety by reducing the probability of contamination leakage and radiation shine. The <1/4" (nominal 1/8") gap design in lieu of a sealed hatch potentially increases contamination migration and shine; however, ADR 245990-HLW-ADR-M0-01-001, Rev. 1 concludes that this effect is minimal and well within the ALARA guidelines.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: No other AB documents are affected by this design change.		
9.	As a result of this design change, is an ISM meeting required?	☒	☐
	Basis: This DCA and specification do not require an ISM meeting because all established ISM requirements have been maintained. The ISM requirements were for position switches which send signals to central controls. Through-wall liners are a safety issue only when they are in place; removing a liner does not introduce any safety issues. An engineered air gap facilitates HVAC air flow requirements. The removal of spool pieces at C3 to C3 junctions, as accepted by HVAC, creates no safety issues. An ISM meeting was conducted (CCN 062230) regarding removal of the inflatable seal on the Clean Canister Import Hatch, HRH-HTCH-0002.		

Safety Evaluation For Design

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	**Rev. # 0**
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	**Rev. # 0**

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

	Print/Type Name	Signature	Date
Safety Evaluation Preparer:	Tom Libs	T W Libs	7/29/03
Design Document Originator/ Supervisor:	Roxie Wight	R. Wight	7/29/03

Only required for screenings requiring NO ABCN or ABAR:

	Print/Type Name	Signature	Date
H&SA Lead:	N/A		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	**Rev. #** 0
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	**Rev. #** 0

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The air gap is less than the 1/4" required for fire doors and is only on three small openings, hatches which essentially perform the same functions as doors. The gaps facilitate HVAC system flow requirements. The design changes to reconfigure the hatch proximity switches and eliminate through-wall liners and extension spool pieces are a result of design evolution improvements and do not create any new hazards. The hatch configuration with positional proximity switches is basically unchanged. Therefore, a new DBE is not created.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: The results from DBE calculations for loss of contamination control and direct radiation events are analyzed in HLW PSAR Sections 3.4.1.10 and 3.4.1.11. Small engineered air gap design for the hatches was known during the DBE evaluations although it was stated in the PSAR that the hatches were sealed. There is no change to the DBE results analyzed and presented in the PSAR.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The configuration, three nominal 1/8" air gap hatches, has minimal impact to the operation of any other equipment in the facility. HVAC has investigated these hatches and others not identified in the PSAR and determined that any affect upon the HVAC system flow requirements is positive although minimal. PSAR Section 4.3.3.2 identifies three hatches as sealed and ITS SDC, without clarifying the definition of sealed. They are designed with an engineered air gap of 0" – 2" with a minimum achievable gap of 1/8" guaranteed by tolerances. The PSAR will be clarified and hatches specified to have a nominal 1/8" air gap instead of a seal. The Cask Export Hatch, HEH-HTCH-00002, is at the 0'-0" level. It covers a port between rooms H-0130 (C2) and H-033B (C2/C3). The Canister Decon Cave Import Hatch, HEH-HTCH-00004, is at the 14' level. It covers a port between rooms H-B033B (C3) and H-0132 (C5); both rooms are classified C3. The Clean Canister Import Hatch, HRH-HTCH-00002, allows clean canisters to be moved from H-0135, a C2/R2 room, to H-B045, a C3/R3 room. A roll up door is used to allow delivery of canisters to the facility located on the east side of H-0135. Air through the gap and remainder of air flow between the two areas will flow through an engineered in-bleed which filters the air and prevents the backflow of contamination. The HVAC group has investigated ventilation requirements in regard to these hatches. The cross-ventilation between rooms needs to be minimized; however, there is no justification for a mechanical seal or inflatable seal. A 1/8" nominal gap is not "sealed," however, it does minimize the cross-ventilation between rooms. This PSAR clarification and specification of the nominal 1/8" clearance does not change the safety function of the hatches or how the hatches meet their safety function to provide confinement.		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	Rev. # 0
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	Rev. # 0

	The clarification of the PSAR regarding the hatch design as an engineered air gap adjustable to a nominal 1/8" does not result in a decrease in hatch safety functions to provide confinement, radiation shielding, and air in-bleed. The proximity switches remain a prevention to simultaneous opening of the shield barriers. The safety functions remain unchanged.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10 CFR 820, *Procedural Rules for DOE Nuclear Activities*, sets forth the procedural rules for conduct of persons involved in DOE Nuclear Activities to achieve compliance with DOE nuclear safety requirements. The design changes to reconfigure hatch proximity switches, remove through-wall liners, and provide for small engineered hatch gaps are not related to any compliance, violation, or enforcement issue; exemption from safety requirements; or reporting of supplier defective products; or inaccurate or incomplete information. 10 CFR 830, *Nuclear Safety Management*, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of technical safety requirements (TSRs), unreviewed safety questions (USQs) and their processes, documented safety analyses (DSAs), hazards control, major modifications, facility safety classified SSCs, and the quality assurance program (QAP). The design changes do not challenge any requirements of 10 CFR 830. 10 CFR 835, *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The reconfiguration of the switches and removal of 10 ½" diameter through-wall liners and spool pieces, and clarification of engineered air gaps will continue to meet the requirements of 10 CFR 835. The design changes are beyond the level of detail in the top-level safety principles for design (RL/REG-96-0006, Section 4.2.1). Therefore, the changes continue to conform to the top-level safety standards, as described above.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: In one case, the hatches are located between two rooms that will not be entered by operators (R5). In the other two cases, the hatch divides a C2 area from a C2/C3 area. None of the cases will expose or contaminate an operator if the air flows opposite of the intended cascading air flow for a short period of time. The proximity switch design evolution does not adversely impact safety. Safety to operators and SSCs will be minimally affected.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: These changes are in compliance with the requirements of Contract Standard 7(e)(2). They will not impact the WTP's ability to comply with applicable DOE/OSR safety guidance and requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: There are no BNI responses or commitments in responses to OSR questions regarding the AB that are inconsistent with these design changes. Additionally, there is nothing in DOE's SER on the HLW PSAR that is inconsistent with these changes. ABAR		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	Rev. # 0
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	Rev. # 0

	24590-WTP-ABAR-ENS-03-007 amending Section 4.3.3.2 of the PSAR included statements relative to sealed hatches, as discussed in Part 1, Question 2 of this safety evaluation. As noted, "seal" will be clarified as "engineered air gap adjustable to a nominal 1/4".		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:		9/4/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-433	Rev. # 0
Design Document Evaluated: 24590-WTP-3PS-ADDC-T0002	Rev. # 0

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization: HLW Facility Specific Information	24590-WTP-PSAR-ESH-01-002-04	0c	4.3.3.2 4.4.1.2

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Tom Libs		7/29/03
☐	AB Document Custodian			
☐	Quality Assurance			
☐	Engineering			
☒	Affected Area Project Manager	Phil Schuetz		8/5/03
☒	Operations	Cindy Beaumier		8/5/03
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None	N/A		

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 8/5/03 (*Date*)

Attachment 11

Authorization Basis Change Notice 24590-WTP- SE-ENS-03-449, Revision 0

Safety Evaluation For Administrative Controls

JK 8/13/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-449	Rev. # 0
Document Evaluated:	24590-WTP-PSAR-ESH-01-002-01	Rev. # 0
Consists of Parts: ☒ 1 ☒ 2 ☐ 3		
Title: Roles and Responsibilities of the Radiological Safety Manager listed in the PSAR		

Description of change:

Modify section 6.5.1.3, bullet three, of the PSAR General Information Volume as follows:

"Ensure that validated calculational methods for performing criticality safety analysis and the results of the analyses are maintained in accordance with the quality assurance program."

Reason for change:

It is proposed to delete "and configuration management" from this statement as it is redundant with the QAM requirement and confusing in that there are no special CM requirements associated with criticality calculations.

This safety evaluation is used to determine if this AB document change falls within the threshold of changes that may be made without prior DOE approval. It also serves to document the safety of this administrative control change.

Part 1 Safety Evaluation		**YES**	**NO**
1.	Does the document involve deletion or modification of a standard previously identified or established in the approved SRD?	☒	☐
	Basis: No, the change involves clarification of the roles and responsibilities of the Radiological Safety Manager and does not involve a standard.		
2.	Does the document involve modification of an approved technical safety requirement (TSR) (only after Production Operations Authorization Agreement approval)?	☒	☐
	Basis: N/A – this change is before Production Operations Authorization Agreement approval.		
3.	Does the document result in any noncompliance with applicable laws and regulations, nonconformance to top-level safety standards, nonconformance to the requirements of the SRD, or fail to provide adequate safety?	☐	☒
	Basis: No, the change involves clarification of the roles and responsibilities of the Radiological Safety Manager. Requirements of the QAM remain applicable to the validation of calculational methods. The Monte Carlo Nuetron Particle (MCNP) computer code is on the ITS list of approved/validated calculational methods. The change does not involve a top-level safety standard, requirements within the SRD, or fail to provide adequate safety.		
4.	Does the document result in a nonconformance to the contract requirements associated with the authorization basis documents affected by the proposed change?	☐	☒
	Basis: No, the change involves clarification of the roles and responsibilities of the Radiological Safety Manager and does not result in a non-conformance with contract requirements.		
5.	Does the document result in inconsistencies with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement?	☐	☒
	Basis: The roles and responsibilities for the Radiological Safety Manager also appear in Chapter 17 of the PSAR; however, these roles and responsibilities do not conflict.		
6.	Does the document conflict with an open or pending ABCN or ABAR?	☐	☒
	Basis: No, there are not any open or pending ABCNs were identified that conflict with the proposed change.		

Safety Evaluation For Administrative Controls

JK 8/13/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-449	**Rev. # 0**
Document Evaluated:	24590-WTP-PSAR-ESH-01-002-01	**Rev. # 0**

If all questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 2 of this form and send to the E&NS AB Coordinator. If any Part 1 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete parts 2 AND 3 of this form and send to the E&NS AB Coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Safety Evaluator Preparer:	Lee F. Dougherty		
	Print/Type Name	*Signature*	*Date*
Administrative Control Document Originator:	N/A		
	Print/Type Name	*Signature*	*Date*

Safety Evaluation For Administrative Controls

8/13/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-449	**Rev. # 0**
Document Evaluated:	24590-WTP-PSAR-ESH-01-002-01	**Rev. # 0**

Part 2 BNI-Approved AB Change (ABCN)

If this is a BNI-approved change, list affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
PSAR to Support CAR; General Information	24590-WTP-PSAR-ESH-01-002-01		6.5.1.3

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Lee F. Dougherty	Lee F. Dougherty	8/11/03
☒	AB Document Custodian	Lee F. Dougherty	Lee F. Dougherty	8/11/03
☐	Quality Assurance			
☒	Engineering	Janet Roth	Janet J. Roth	8/12/03
☐	Affected Area Project Manager			
☐	Operations			
☐	Construction			
☒	Radiological and Fire Safety	Marshal Perks	M. F. Perks	8/11/03
☐				

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None N/A			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 8/13/03 (*Date*)

Attachment 12

Authorization Basis Change Notice 24590-WTP- SE-ENS-03-463, Revision 0

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4

Title: Changes to the HLW Annex, Glass Former Feed Room and Room Classifications

Description of design change:

The changes to the General Arrangements (GAs) are addressed in safety screens 24590-WTP-SE-ENS-03-456 to 24590-WTP-SE-ENS-03-462. The safety evaluation of these drawings was addressed in several parts to simplify the evaluations and minimize the potential for confusion.

The elevation, layout (structural related), and structural changes associated with these GAs are addressed in ABAR 24590-WTP-SE-ENS-03-111, and are not discussed further in this safety evaluation.

The addition of the carbon bed adsorbers and rearrangement of the secondary offgas system as depicted on these GAs are addressed in ABAR 24590-WTP-SE-ENS-03-033, and are not discussed further in this safety evaluation.

The elimination of the ITS 125V DC batteries, which may be inferred from these changes in the GAs, is addressed in ABAR 24590-WTP-ENS-03-518 and is not discussed further in the safety evaluation.

SSCs related to the Melter 2 addition are on hold. The addition of the Melter 2 SSCs is pending approval of safety evaluation 24590-WTP-SE-ENS-02-045 (formerly 24590-WTP-ABAR-ENS-02-013) and is not discussed further in this evaluation. However, changes in locations of these SSCs are addressed herein.

The design changes to the HLW annex, Glass Former Feed Room, and Room Classifications as identified in safety screens 24590-WTP-SE-ENS-03-256 to 24590-WTP-SE-ENS-03-262 are as follows:

1. The UPE-BATT-30001A, UPE-UPS-30001A, LVE-LC-30004, and LVE-LC-30003A were moved from the 0'-0" elevation to the 14'-0" elevation in the annex. (24590-WTP-SE-ENS-03-457, item 5 and 24590-WTP-SE-ENS-03-458, item 1.)
2. The UPE-UPS-30002A, UPE-UPS-30002B, LVE-LC-30001, LVE-LC-30002, LVE-LC-30003B, MVE-SWGR-30001, DCE-BATT-30001, UPE-UPS-30001B, and UPE-BATT-30001B were moved from 0'-0" elevation to the 37'-0" elevation in the annex. (24590-WTP-SE-ENS-03-457, item 6 and 24590-WTP-SE-ENS-03-459, item 4.)
3. The Motor Control Centers (MCCs) LVE-MCC-30003A, LVE-MCC-30021A, LVE-MCC-30006A, LVE-MCC-30007B, and LVE-MCC-30022B have been relocated to the 0'-0" elevation of the annex. (24590-WTP-SE-ENS-03-457, item 7.)
4. The Motor Control Centers (MCCs) LVE-MCC-30001A, LVE-MCC-30020A, LVE-MCC-30018A, and LVE-MCC-30019B have been relocated to the 14'-0" elevation of the annex. (24590-WTP-SE-ENS-03-458, item 2.)
5. Room H-0430 at the 58'-0" elevation now shows MCCs LVE-MCC-30016B, LVE-MCC-30015A, and LVE-MCC-30017B. (24590-WTP-SE-ENS-03-460, item 8.)
6. The C1V-AHU-00004, C1V-AHU-00028, and C1V-AHU-00029 were moved from the 11'-0" elevation in the annex to the roof of the annex at the 58'-0" elevation. The C1V-AHU-00003 was moved from the 37'-0" elevation in the annex to the roof of the annex at the 58'-0" elevation. (24590-WTP-SE-ENS-03-458, item 3, 24590-WTP-SE-ENS-03-459, item 1, and 24590-WTP-SE-ENS-03-460, item 3.)
7. The HOP Silver Mordenite Preheaters (HOP-HX-00002 and HOP-HX-00004) have been moved from the –21'-0" elevation to the annex at the 0' elevation. The HOP Catalytic Oxidizer Skids (HOP-SCO-00002 and HOP-

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

Description of design change:

SCO-00003) have been moved from the –21'-0" elevation to the annex at the 0' elevation. The mercury adsorbers (HOP-ADBR-00001A/B and HOP-ADBR-00002A/B) were moved from the 58'-0" (49') elevation to the 0'-0" elevation of the annex. (24590-WTP-SE-ENS-03-456, items 4 and 5, 24590-WTP-SE-ENS-03-457, item 10, and 24590-WTP-SE-ENS-03-460, item 1).

8. The Glass Former Feed Hoppers have been moved from the 49'-0"/62'-0" elevation to the roof at the 91'-0" elevation. The details of the Glass Former Feed system design are currently on hold, pending further engineering/vendor information. (24590-WTP-SE-ENS-03-460, item 2, 24590-WTP-SE-ENS-03-461, item 1, 24590-WTP-SE-ENS-03-462, item 1.)
9. The C3/R3 Secondary Offgas room (H-A123) has been added to the South end of the annex at the 0'-0" elevation. The areas within the annex at the 0'-0" elevation had been expected to be either a C1 or C2 area. (24590-WTP-SE-ENS-03-457, item 11.)
10. The C3 Exhaust Filters room (H-0414) and C3 Canister Storage Exhaust Filters room (H-0415) designation have changed from C3/R3 to a C2/C3/R2 area. (24590-WTP-SE-ENS-03-460, item 8.)

Reason for design change:

1. The equipment was moved to the 14'-0" elevation as discussed in DCA 24590-HLW-DCA-PL-03-003. The Train A of the ITS equipment was moved to the 14'-0" elevation to provide better separation of redundant equipment.
2. The equipment was moved to the 37'-0" elevation as discussed in DCA 24590-HLW-DCA-PL-03-003. The Train B of the ITS equipment was moved to the 37'-0" elevation to provide better separation of redundant equipment.
3. MCCs were relocated and MCC equipment numbers were added to the General Arrangement drawing to provide more detail on the location of the MCCs.
4. MCCs were relocated and MCC equipment numbers were added to the General Arrangement drawing to provide more detail on the location of the MCCs.
5. MCCs were relocated and MCC equipment numbers were added to the General Arrangement drawing to provide more detail on the location of the MCCs.
6. The C1V Air Handling Units were moved to the roof of the annex due to the increased size as discussed in DCA 24590-HLW-DCA-PL-03-003.
7. The offgas equipment was moved to the 0'-0" elevation of the annex as part of the rearrangement of the Secondary Offgas system (24590-HLW-DCA-PR-03-003).
8. The Glass Former Feed Hopper room was moved to the roof at the 91'-0" elevation to provide more space at the 58'-0" elevation.
9. The Secondary Offgas room is a C3/R3 area due to the expected levels of contamination determined by

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	**Rev. # 0**
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	**Rev. # N/A**

Reason for design change:

radiological protection. This area will be vented by the C3 ventilation system.

10. The C3 Exhaust Filter room and C3 Canister Storage Exhaust Filter room were changed to C2/C3/R2 areas. The expected contamination level of the rooms was determined by radiological protection to normally be a C2 area. The boundary of this area has not changed and is still ventilated by the C3 ventilation system.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The changes to the revision of these general arrangement drawings do not modify or delete a standard prescribed in the SRD.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: (Items 1 and 2) Section 2.4.12.8 of the HLW PSAR indicates that the annex at the 0 ft elevation contains the Uninterruptible Power Supplies (UPS), batteries, and load centers. Section 4.3.12.2 of the HLW PSAR indicates that the ITS load centers are located at the 0 ft elevation of the annex. The BOF feed is described in section 4.3.12.2 as terminating at the 0 ft elevation load centers. Load centers Train A is located on the 14 ft elevation and Train B is located on the 37 ft elevation. (Items 3, 4, and 5) Section 2.4.14.11 of the HLW PSAR indicates that the annex at the 30 ft (37 ft) elevation contains MCCs. The MCCs are also shown on the 0 ft and 14 ft elevation of the annex. MCCs are also shown on the general arrangement drawings at the 58 ft elevation. (Item 6) Section 2.4.13.3 of the HLW PSAR indicates that the C1 ventilation air handling units (AHUs) are located in the annex at the 11 ft (14 ft) elevation. The C1 ventilation AHUs are now located on the roof of the annex at the 58 ft elevation.		

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	**Rev. # 0**
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	**Rev. # N/A**

—	(Item 7) Section 2.4.11.2 of the HLW PSAR indicates that the booster fan preheaters are located at the –21 ft elevation. Sections 2.4.11.4 and 3.4.12.1 of the HLW PSAR indicates that the catalytic oxidizer skids are located at the –21 ft elevation. Table B-2 of the HLW PSAR indicates that the Secondary Offgas system is located at the –21 ft elevation. The mercury adsorbers are not specifically mentioned in the HLW PSAR and need to be added to the PSAR, as addressed in safety evaluation 24590-WTP-SE-ENS-03-033. The booster fan preheaters, catalytic oxidizer skids, and mercury adsorbers have been moved to the 0 ft elevation of the annex. (Item 8) Section 2.4.12.1.6, 2.4.15.1, and Table 3-3 of the HLW PSAR indicate that the Glass Former Feed Hoppers are located at the 49 ft elevation. The Glass Former Feed Hoppers are located on the roof of the HLW facility at the 91 ft elevation. (General) The general arrangement drawings do not show the function or reliability of SSCs as indicated in the AB.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: The classifications of some of the rooms in the HLW facility have changed as described in the PSAR; no other classification changes have been made. The area classification changes are: (Item 9) Section 2.4.12.8 of the HLW PSAR indicates that all annex rooms at the 0 ft elevation are either classified as C1 or C2. Some of the Secondary Offgas SSCs were moved to the 0 ft elevation of the annex. The room where the Secondary Offgas SSCs are located is designated as a C3 area. (Item 10) Section 2.4.15.1 of the HLW PSAR indicates that the Exhaust Filter room and Canister Storage Exhaust Filter room are both C3 areas. These rooms are both indicated as C2/C3 areas on the general arrangement drawings.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: The safety function of SSCs are not delineated on GAs. There are no changes in the safety function of SSCs due to the changes addressed in this safety evaluation.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

	Basis: New hazards due to the changes to the revision of these general arrangement drawings have not been identified. The changes do not affect the hazard or accident analysis. These changes will be further evaluated in the ongoing hazard topography, which will address impacts of interactions of systems based on location. The addition of the mercury adsorbers to the offgas system is addressed in safety evaluation 24590-WTP-SE-ENS-03-033.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: These changes do not affect any credited parameters in the WTP Criticality Safety Evaluation Report (24590-WTP-RPT-NS-01-001, Rev 2).		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: Moving the Glass Former Feed Hopper to the roof of the facility at the 91 ft elevation is on hold pending equipment data. An ADR and safety evaluation will be completed before the hold is removed from the drawing. The other changes to the revision of these general arrangement drawings do not affect exposures to radiation, contamination levels, or releases of radioactivity to the environment. The changes only affect the location of where these types of events occur.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: The changes to the general arrangement drawings discussed in this safety evaluation do not affect other AB documents, such as the Integrated Safety Management Plan (ISMP), Radiation Protection Program (RPP), and Quality Assurance Manual (QAM).		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: These changes will be further evaluated (i.e., 2 over 1 and spatial interactions) in the on going hazard topography ISM process.		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Michael Toyooka		originally signed 8/1/03 8/4/03 editorial change mt
	Print/Type Name	*Signature*	*Date*

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

Design Document Originator/ Supervisor:	David Gott	David Gott	8/4/03
	Print/Type Name	*Signature*	*Date*
Only required for screenings requiring NO ABCN or ABAR:			
H&SA Lead:	N/A		
	Print/Type Name	*Signature*	*Date*

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The changes to the general arrangements drawings do not create a new DBE. Note: The Glass Former Feed system is on hold pending further design data and the impact of this system will be evaluated before the hold is removed.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: The changes to these general arrangement drawings addressed in this safety evaluation do not result in more than a minimal increase in the frequency or consequence of an analyzed DBE as described in the PSAR.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The changes to the general arrangement drawings are changes in the location of SSCs and changes to the room classifications. Reclassification of rooms does not impact ITS functions. The movement of the ITS equipment may impose additional seismic forces on the equipment. However, the equipment will be qualified to withstand the forces based on the response of the facility and thus the movement will not have a significant impact.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: The *Procedural Rules for DOE Nuclear Activities*, 10 CFR 820 addresses compliance, violation, or enforcement issue; exemption from safety requirements or reporting of supplier defective products; or inaccurate or incomplete information. The changes to the location of SSCs and room classifications are not related to what is addressed in 10 CFR 820. *Nuclear Safety Management*, 10 CFR 830 addresses requirements related to technical safety requirements (TSRs), unreviewed safety questions (USQs) and their processes, documented safety analyses (DSAs), hazard controls, major modifications, facility safety classified SSCs, and the quality assurance program (QAP). The changes to the location of SSCs and		

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

	change in the classification of rooms do not result in a noncompliance with the requirements addressed in 10 CFR 830. The changes addressed in this safety evaluation do not result in a noncompliance with the requirements in 10 CFR 835. *Occupational Radiation Protection*, 10 CFR 835 addresses radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from the conduct of DOE activities. The room classification changes are consistent with the RPP (and its implementing documentation), which implements 10 CFR 835. The changes addressed in this safety evaluation are in conformance with the top-level safety standards of DOE/RL-96-0006 in that it still provides adequate defense in depth.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: Changing the location of SSCs and room classifications does not create a new DBE, increase the frequency or consequence of an analyzed DBE, or affect the safety function of an ITS SSC. The changes evaluated in this safety evaluation provide adequate safety.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: The changes to the AB documents addressed in this safety evaluation are only changes to the description of the location of SSCs and classification of rooms. These changes to the AB do not result in nonconformance to the contract requirements associated with the AB documents affected by the change.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The relocation of the ITS load centers affects the response to HLW-PSAR-007. This response indicates that the loads are at the 0 ft elevation annex. The loads are now located at the 14 ft and 37 ft elevation of the annex. This change does not affect the requirements of the system, functionality of the system, or commitments in the WTP responses.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:		8/1/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	Rev. # 0
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	Rev. # N/A

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information	24590-WTP-PSAR-ESH-01-002-04	0c	2.4.11.2, 2.4.12.1.6, 2.4.12.8, 2.4.13.3, 2.4.14.11, 2.4.15.1, and 4.3.12.2 Table 3-3

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Michael Toyooka		8/1/03
☐	AB Document Custodian			
☐	Quality Assurance			
☒	Engineering	Dilip Patel		8/4/03
☐	Affected Area Project Manager			
☒	Operations	Cindy Beaumier		8/4/03
☐	Construction			

Safety Evaluation No.:	24590-WTP-SE-ENS-03-463	**Rev. # 0**
Design Document Evaluated:	24590-HLW-P1-P01T-00001, Rev. 3	
	24590-HLW-P1-P01T-00002, Rev. 2	
	24590-HLW-P1-P01T-00003, Rev. 2	
	24590-HLW-P1-P01T-00004, Rev. 2	
	24590-HLW-P1-P01T-00005, Rev. 1	
	24590-HLW-P1-P01T-00006, Rev. 1	
	24590-HLW-P1-P01T-00007, Rev. 1	
	24590-HLW-P1-P01T-00008, Rev. 7	
	24590-HLW-P1-P01T-00009, Rev. 7	
	24590-HLW-P1-P01T-00010, Rev. 7	
	24590-HLW-P1-P01T-00011, Rev. 7	**Rev. # N/A**

Other Affected Organizations	Print / Type Name	Signature	Date
HVAC	Hadi Jalali	Hadi Jalali	7/31/03 8/4/03
Mechanical Systems	Marla Wright	M. L. Wright	8/1/03
Electrical	Bill Cheung		7-31/03 8/4/03

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) Fred Beranek (*Signature*) 8/5/03 (*Date*)

Attachment 13

Authorization Basis Change Notice 24590-WTP- SE-ENS-03-479, Revision 0

Safety Evaluation For Administrative Controls

 RLP 7/21/03

Safety Evaluation No.:	24590-WTP-SE-ENS-03-479	**Rev. #** 0
Document Evaluated:	24590-WTP-PSAR-ESH-01-001-01	**Rev. #** 0b
Consists of Parts:	☒ 1 ☒ 2 ☐ 3	
Title:	PSAR Volume I Chapter 17 2003 Update	

Description of change:

This Safety Evaluation (SE) assesses proposed changes to Chapter 17, *Management, Organization, and Institutional Safety Provisions*, of the WTP Project *Preliminary Safety Analysis Report to Support Partial Construction Authorization; General Information* (Volume I), 24590-WTP-PSAR-ESH-01-001-01.

These changes are proposed to be part of the 2003 update for Chapter 17, as planned to be incorporated into a single, consolidated PSAR Volume I for Construction Authorization document (combining the PSAR Volume I for partial and the PSAR Volume I for full construction authorization documents). This consolidated Volume I is scheduled to be issued on September 30, 2003 as 24590-WTP-PSAR-ESH-01-002-01, Revision 1.

Programmatic safety program related changes for Chapter 17 are proposed in Section 17.6.3, "Configuration Management" and in Section 17.6.6, "Unreviewed Safety Question Process". Other editorial and clarification changes are provided in sections 17.1, "Introduction", 17.5.2, "Organizational Responsibilities", 17.6.1, "Project Integrated Safety Management Approach", 17.6.4, "Document Control and Records Management", and 17.7, "References".

See Attachment 1 to this SE for a redlined version of the specific, proposed changes to Chapter 17 and Attachment 2 for a summary of these proposed changes and their associated safety evaluation documentation.

Reason for change:

The main proposed updates addressed in this SE are provided to address 1) DOE Safety Evaluation Report (SER) Conditions of Acceptance (COA) and 2) Questions/Responses (Q/Rs) for the Construction Authorization Request approval of this PSAR Chapter 17, as well as to provide clarifications on specific WTP Project AB commitments and approaches relative to the WTP Project Configuration Management (CM) Program and the Unreviewed Safety Question (USQ) process. These CM and USQ COA and Q/R related changes, noted in this SE's Attachment 2 entries, were committed to by the Contractor to be addressed in the "next PSAR update following Construction Authorization", i.e., the 2003 PSAR update. Other changes proposed in other sections of Chapter 17 are provided for clarification and routine maintenance purposes.

This safety evaluation is used to determine if this AB document change falls within the threshold of changes that may be made without prior DOE approval. It also serves to document the safety of this administrative control change.

Part 1 Safety Evaluation		**YES**	**NO**
1.	Does the document involve deletion or modification of a standard previously identified or established in the approved SRD?	☐	☒
	Basis: SRD related requirements, as identified in the PSAR subsection 17.2, are provided for Configuration Management in SRD Safety Criteria (SC) 4.0-1, 4.0-2, 4.0-3, and 7.0-3, as well as in the CM related sections of SRD ad hoc standards (i.e., SRD Appendix C.1). SRD USQ related requirements are provided in SRD safety criteria under SRD section 7.4 and in SC 9.1-4. These proposed revisions to PSAR Vol I Chapter 17 do not involve or impact these CM and USQ related Safety Criteria or standards, as established in the approved SRD.		

Safety Evaluation No.:	24590-WTP-SE-ENS-03-479	**Rev. # 0**
Document Evaluated:	24590-WTP-PSAR-ESH-01-001-01	**Rev. # 0b**

2.	Does the document involve modification of an approved technical safety requirement (TSR) (only after Production Operations Authorization Agreement approval)?	☐	☒
	Basis: TSRs are not in effect at this phase of the Project, so these revisions to PSAR Vol I Chapter 17 do not involve or impact approved TSRs. A review of the draft TSRs found these proposed changes to be consistent with the draft TSR document 24590-WTP-TSR-ESH-01-001, Section 5.4.2.10 on Configuration Management. [Note: The USQ process was not addressed in the draft TSRs.]		
3.	Does the document result in any noncompliance with applicable laws and regulations, nonconformance to top-level safety standards, nonconformance to the requirements of the SRD, or fail to provide adequate safety?	☐	☒
	Basis: See Attachment 2 to this SE for a summary of the proposed changes and the associated safety evaluations provided to address this question. That attachment provides a one-to-one evaluation of the proposed changes. From these evaluations, it was concluded that the proposed changes did not result in any noncompliance with applicable laws and regulations or nonconformance with top-level standards, nor did they fail to provide adequate safety. The programmatic changes to CM and USQ sections were in conformance with the DOE SER COA and the Q/R agreed upon changes between DOE and the Contractor.		
4.	Does the document result in a nonconformance to the contract requirements associated with the authorization basis documents affected by the proposed change?	☐	☒
	Basis: A review was conducted on the current WTP Project contract (through Mod A029). The proposed changes to the PSAR Vol. I sections on Configuration Management and the Unreviewed Safety Questions do not result in non-conformance with the contract requirements for the preliminary documented safety analysis information to be provided for the WTP Project CM Program and the USQ process.		
5.	Does the document result in inconsistencies with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement?	☐	☒
	Basis: Changes proposed are consistent with prior DOE SER approval directed changes to Chapter 17, as part of the Conditions of Acceptance (COAs) and Questions/Responses (Q/Rs) from DOE review and approval of Chapter 17. Specifically, SER directed changes to Chapter 17 are in three COAs for Chapter 17. COE no. 1 was in response to Q/R LAW-PCAR-005, COA no. 2 was in response to Q/R LAW-PSAR-161, and COA no. 3 was in response to Q/R LAW- PSAR-160. In addition to those Q/Rs, Q/R LAW-PSAR-035 was addressed by a proposed update to Section 17.6.3 to clarify that the CM process applies to all ITS SSCs. This proposed change is consistent with commitments in the SRD for CM coverage. The response to COA no. 1 for the Chapter 17 subsection on CM staffing interfaces was modified slightly to reflect organizational title changes in effect since the Q/R was developed. The SE discussion (presented in Attachment 2) on proposed changes made in lieu of verbatim Q/R incorporation provides rationale on why these proposed updates still maintain a safe approach, relative to the WTP Project configuration management staffing interfaces. COA no. 2 and COA no. 3 updates, related to PSAR Chapter 17 text revisions for the USQ process, were incorporated verbatim with the Q/R identified text changes.		

Safety Evaluation For Administrative Controls

Safety Evaluation No.:	24590-WTP-SE-ENS-03-479	**Rev. # 0**
Document Evaluated:	24590-WTP-PSAR-ESH-01-001-01	**Rev. # 0b**

6.	Does the document conflict with an open or pending ABCN or ABAR?	☐	☒
	Basis: The WTP Project AB maintenance database was reviewed and it was confirmed that there were currently no other ABCN of ABAR being developed for this chapter, thus these revisions to PSAR Volume I Chapter 17 do not conflict with other open or pending ABCNs or ABARs.		

If all questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 2 of this form and send to the E&NS AB Coordinator. If any Part 1 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete parts 2 AND 3 of this form and send to the E&NS AB Coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Safety Evaluator Preparer:	Rodger Dickey *Print/Type Name*	Rodger Dickey *Signature*	7/21/03 *Date*
Administrative Control Document Originator:	Lorie Blehm/ Jim Hummer *Print/Type Name*	L. Blehm / J. Hummer *Signature*	8/12/03/08-11-03 *Date*

Safety Evaluation No.:	24590-WTP-SE-ENS-03-479	**Rev. # 0**
Document Evaluated:	24590-WTP-PSAR-ESH-01-001-01	**Rev. # 0b**

Part 2 BNI-Approved AB Change (ABCN)

If this is a BNI-approved change, list affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; General Information	24590-WTP-PSAR-ESH-01-002-01	1	17

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Rodger Dickey	Rodger Dickey	8/12/03
☒	AB Document Custodian	Lee Dougherty	Lee Dougherty	8/13/03
☐	Quality Assurance			
☒	Engineering	Janet Roth	Janet Roth	8/12/03
☐	Affected Area Project Manager			
☒	Operations	Karen Lesko	Karen Lesko	8/13/03
☐	Construction			
☐				

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None	N/A		

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 8/13/03 (*Date*)

Attachment 1

Proposed Changes to Preliminary Safety Analysis Report; Volume I General Information, Chapter 17, "Management, Organization, and Institutional Safety Provisions"

Document Part	Title	Starting Page	No. of Pages
Attachment 1 to 24590-WTP-SE-ENS-03-479	Proposed Changes to Preliminary Safety Analysis Report; Volume I General Information, Chapter 17	17-i	41

# of pages (including cover sheet): 42

17 Management, Organization, and Institutional Safety Provisions

Contents

Tables

Figures

17 Management, Organization, and Institutional Safety Provisions

17.1 Introduction

Bechtel National, Inc. (BNI) is the design, construction, and commissioning (DC&C) contractor of the Hanford Tank Waste Treatment and Immobilization Plant (WTP) Project. The WTP operations contractor and the deactivation contractor selections will be made at a future date.

The BNI organization for the WTP Project will accomplish its defined work in a ~~contractural~~contractual and regulatory compliant manner that provides for the health and safety of workers and the public and protects the environment from degradation.

The WTP Project organization key activities related to safety and their schedules, including regulatory interface actions with the DOE Office of River Protection, Safety Regulation Division (OSR), roles and responsibilities, interface management, and safety management controls are presented in this chapter for the DC&C phase of the WTP Project.

17.2 Requirements

Safety Requirements Document (SRD; 24590-WTP-SRD-ESH-01-001-02)

Chapter 1.0	Radiological, Nuclear and Process Safety Objectives	Safety Criteria 1.0-1, 1.0-9
Chapter 4.0	Engineering and Design	Safety Criteria 4.0-1, 4.0-2, 4.0-3
Chapter 7.0	Management and Operations	Safety Criteria 7.0-3, 7.0-4
Section 7.1	Management and Organization/Staffing	Safety Criterion 7.1-3
Section 7.3	Quality Assurance Program	Safety Criteria 7.3-8, 7.3-9
Section 7.4	Unreviewed Safety Question	Safety Criteria 7.4-1 through 7.4-5
Section 7.7	Reporting and Incident Investigations	Safety Criteria 7.7-1 through 7.7-8
Section 9.1	Safety Analysis Reports	Safety Criterion 9.1-5

Integrated Safety Management Plan (ISMP; 24590-WTP-ISMP-ESH-01-001)

ISMP Section	WTP Project Integrated Safety Management Element	WTP Project Radiological, Nuclear, and Process Integrated Safety Management Coverage PSAR Vol. I Chapter 17
1.3	Scope and Safety Documentation Related to Limited Construction	17.4.4, "Submittal of Regulatory Safety Related Documentation."
1.3	Scope and Safety Documentation Related to Partial Construction	17.4.4, "Submittal of Regulatory Safety Related Documentation."
1.3	Scope and Safety Documentation Related to Construction	17.4.4, "Submittal of Regulatory Safety Related Documentation.

ISMP Section	WTP Project Integrated Safety Management Element	WTP Project Radiological, Nuclear, and Process Integrated Safety Management Coverage PSAR Vol. I Chapter 17
1.4	Development of Safety Management Processes	17.6.1, "Project Integrated Safety Management Approach."
1.4	Identification of Safety Management Program Drivers	17.6.1, "Project Integrated Safety Management Approach"
1.4	Development of Safety Management Programs	17.6.1, "Project Integrated Safety Management Approach"
1.5	Compliance with and implementation of 10 CFR 830	17.4.1, "Documentation for Compliance with 10 CFR 830, 'Nuclear Safety Management"
1.5	Compliance with and implementation of 10 CFR 835	17.4.2 , "Documentation for Compliance with 10 CFR 835, 'Occupational Radiation Protection'"
1.5	Radiation Protection Program	17.4.2, "Documentation for Compliance with 10 CFR 835, 'Occupational Radiation Protection'"
1.5	Compliance with 10 CFR 820, "Procedural Rules for DOE Nuclear Facilities"	17.4.3, "Documentation for Compliance with 10 CFR 820, 'Procedural Rules for DOE Nuclear Activities"
1.5	Statutory Compliance	17.5.3.1, "External Interfaces," subsection Regulatory Interfaces
1.5	Training and Qualification	17.5.4, "Staffing and Qualification"
1.5	Personnel Qualifications and Resources	17.5.4, "Staffing and Qualification"
1.5	Development of the Operator Training Program	17.5.4, "Staffing and Qualification"
1.5	Project Integrated Safety Management Approach	17.6.1, "Project Integrated Safety Management Approach"
1.5	Laws/Regulations/Top-Level Safety Requirements/Best Industry Practices	17.6.1, "Project Integrated Safety Management Approach"
1.5	Identification of Safety Requirements	17.6.1.1, "Identification of Work, Hazards, Controls, and Standards"
1.5	Control of the AB	17.6.3, "Configuration Management."
1.5	Configuration Management	17.6.3, "Configuration Management"
1.5	Document Control and Maintenance	17.6.4, "Document Control and Records Management"
1.5	Content of AB	17.6.5, "Authorization Basis Management"
1.5	Changes to the AB	17.6.5, "Authorization Basis Management."
1.5	Unreviewed Safety Questions	17.6.6, "Unreviewed Safety Question Process"

ISMP Section	WTP Project Integrated Safety Management Element	WTP Project Radiological, Nuclear, and Process Integrated Safety Management Coverage PSAR Vol. I Chapter 17
1.5	Incident Investigations	17.6.7, "Occurrence Reporting"
1.5	Safety Improvement	17.6.2.1, "PSC Safety Oversight"
1.5	Safety/Quality Culture	17.6.8, "Safety/Quality Culture"
1.6	Environmental Protection Interface	17.5.3.1, "External Interfaces"
1.6	Occupational Health and Safety Interface	17.5.3.1, "External Interfaces"
1.6	Safeguards and Security Interface	17.5.3.1, "External Interfaces"
1.6	DOE Inspection Program	17.5.3.1, "External Interfaces"
1.6	DOE Corrective Action/Enforcement Action Program	17.5.3.1, "External Interfaces,"
1.7	Scheduling Safety-related Activities	17.3, "Key Activities Related to Safety" and Section 17.4.4, "Submittal of Regulatory Safety Related Documentation." PSAR Vol. I Tables 17-1 through 17-3.
1.7	Scheduling of Events for Regulatory Submittals	17.4.4, "Submittal of Regulatory Safety Related Documentation"
1.8	Compliance Audits	17.6.2, "Safety Review and Performance Assessments"
1.8	Internal Safety Oversight	17.6.2 "Safety Review and Performance Assessments"
1.8	Safety Committees	17.6.2, "Safety Review and Performance Assessment"
1.8	Performance Monitoring	17.6.2.2, "Management Assessments and Independent Assessments of the WTP Project"
1.8	Performance Indicators	17.6.2.2, "Management Assessments and Independent Assessments of the WTP Project"
1.8	Assessments	17.6.2.2, "Management Assessments and Independent Assessments for the WTP Project"
1.8	Management Assessments	17.6.2.2, "Management Assessments and Independent Assessments for the WTP Project"
1.8	Independent Assessments	17.6.2.2, "Management Assessments and Independent Assessments for the WTP Project," Audits."
1.8	Lessons Learned	17.6.7.8, "Lessons Learned" and Section 17.6.7, "Occurrence Reporting"
1.8	Feedback and Trending	17.6.7.9, "Feedback and Trending."

ISMP Section	WTP Project Integrated Safety Management Element	WTP Project Radiological, Nuclear, and Process Integrated Safety Management Coverage PSAR Vol. I Chapter 17
1.9	Content of AB	17.4.5, "Tailoring of Regulatory Safety Related Documents" and Section 17.6.5, "Authorization Basis Management"
1.9	Tailoring of Documentation Related to Safety	17.4.5, "Tailoring of Safety-related Documentation."
1.10	Safety Responsibilities	17.5.2, "Organizational Responsibilities"
1.10	Design, Construction, and Commissioning Contractor Organization Roles, Responsibilities, and Authorities	17.5.2.1, "Design, Construction, and Commissioning Contractor Roles and Responsibilities"

17.3 Key Activities Related to Safety

Key activities related to safety are those higher-level activities that are integral to the preservation of the WTP Authorization Basis (AB) for protecting worker and public health and the environment. Tables 17-1 to 17-3 show these activities, in a project life-cycle phased flow sequence, together with the assignment for the conduct of these activities to Project functional areas.

17.4 Regulatory Safety Related Documentation

Regulatory safety deliverables associated with approvals for start of construction and commissioning include the safety documentation necessary to support WTP Project authorizations. These regulatory safety documentation deliverables and the subordinate tasks to prepare, review, and approve them are reflected in formal Project plans and schedules developed as part of project execution and control activities.

The scope of WTP construction and commissioning safety-related documentation deliverables and schedules is as described in the amended WTP design, construction, and commissioning Contract. Safety documentation for construction and commissioning is submitted in compliance with this WTP Project contract, Section C, Standard 7. This Standard, in particular Table S7-1, defines the flow and schedule of Contractor important-to-safety documentation deliverables.

17.4.1 Documentation for Compliance with 10 CFR 830, "Nuclear Safety Management"

The WTP Project develops, implements, and maintains its nuclear safety management program in compliance with 10 CFR Part 830, "Nuclear Safety Management". This program complies with the requirements for 1) a Quality Assurance (QA) program, as specified in 10 CFR 830, Subpart A, "Quality Assurance Requirements" and 2) with the development, implementation, and maintenance of the WTP nuclear safety basis documentation as specified in 10 CFR 830, Subpart B, "Safety Basis Requirements".

The Project QA program is implemented to ensure that the design, procurement, construction, testing, inspection, operation, maintenance, and deactivation activities conform to regulatory and contractual requirements. The QA Program is structured to reflect BNI Corporate QA program policy, as well as use of NQA-1-1989; *Quality Assurance Requirements for Nuclear Facility Applications*, DOE/RW-0333P,

Quality Assurance Requirements and Description (QARD) for the Civilian Radioactive Waste Management Program; and DOE Order 414.1A, *Quality Assurance*. The QA Program document is issued as the RPP-WTP Project Quality Assurance Manual (QAM). This QAM, which supports compliance with 10 CFR 830 Subpart A, serves as the Authorization Basis document for implementation of the WTP Project QA Program.

The Safety Analysis Reports (SARs) for the WTP serve as the documented safety analysis (DSA) required by 10 CFR 830 Subpart B. The SARs furnish the safety analysis documentation for the facility to demonstrate that the WTP can be safely operated, maintained, and shut down. The Initial Safety Analysis Report (ISAR) was developed during conceptual design of the facility. Those portions of the ISAR that relate to the fundamental aspects of design were considered to be part of the AB. The Preliminary Safety Analysis Report (PSAR) is based on the facility design and plans for construction authorization and demonstrates adequate planning for the operational phase. The Final Safety Analysis Report (FSAR) documents the completed design and construction and provides details on the plans for operation. The FSAR includes facility and process drawings and fabrication and construction specifications important to the safety analysis of the facility. Other safety basis documentation required by 10 CFR 830 Subpart B to support operations (e.g., Technical Safety Requirements, Unreviewed Safety Question process procedure) will be provided for DOE approval prior to the beginning of WTP hot commissioning.

17.4.2 Documentation for Compliance with 10 CFR 835, "Occupational Radiation Protection"

A radiological control program that implements the requirements of 10 CFR 835 and additional requirements specified in SRD Volume II Chapter 5.0 "Radiation Protection" is established for the WTP Project. Documentation for compliance with 10 CFR 835, "Occupational Radiation Protection" is presented in 24590-WTP-RPP-ESH-01-001, *Radiation Protection Program for Design and Construction.*

17.4.3 Documentation for Compliance with 10 CFR 820, "Procedural Rules for DOE Nuclear Activities"

The Contractor complies with the 10 CFR 820 procedural rules to meet Price Anderson Amendments Act (PAAA) nuclear safety requirements through the development of the necessary procedures and processes to implement the related nuclear safety programmatic requirements (e.g., the Quality Assurance Manual, Safety Analysis Reports, Radiation Protection Program for Design and Construction, Employee Concerns Program, and PAAA noncompliance reporting). The processes for meeting PAAA requirements also include the appropriate procedures and systems to perform audits and self-assessments, identify potential PAAA noncompliances, perform root cause analysis, track and trend noncompliances, and track the implementation of corrective actions.

17.4.4 Submittal of Regulatory Safety Related Documentation

The sequence of submittal of authorization requests includes the following safety related documentation. This documentation includes Project defined requests as well as those deliverables required by DOE/RL-96-0003, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor.*

1) A Limited Construction Authorization Request (LCAR) for early initiation of construction activities that addresses preliminary site preparation, excavation, installation of the mud mat, information on site suitability; stability of surface soils; design requirements, Quality Assurance (QA) program to be applied; current SRD standards; description of planned safety-related testing; procedures to be employed; and the environmental impacts of implementing the requested work activity. DOE approval of the LCAR results in limited construction authorization. The LCAR document serves as AB safety documentation during limited construction authorization activities.

2) A Partial Construction Authorization Request (PCAR) that includes portions of the Preliminary Safety Analysis Report (PSAR). PCARs are used to request DOE authorization for the construction of selected WTP construction scope items, prior to receipt of full construction authorization. These PCAR submittals segment and incrementally submit the CAR to allow construction of the basemat and other facility elements below and up to grade. The information provided in a PCAR is consistent with the Contract requirement of contractor notification of intent to submit a segmented or incremental construction authorization request and with the information provided in the PSAR. The PCAR allows additional review time to support the phased PSAR approval to support full construction work authorization.

3) A full CAR package includes the Preliminary Safety Analysis Report (PSAR). The CAR addresses DOE/RL-96-0003, Section 4.3.2, "Contractor Input." Approval of the CAR initiates full construction.

4) An operating authorization request (OAR) package includes the Final Safety Analysis Report (FSAR). The OAR will address DOE/RL-96-0003, Section 4.4.2, "Contractor Input." The OAR will likely be submitted on a facility by facility basis.

5) Submittal of the deactivation authorization request (DAR) will be provided by the deactivation contractor. The DAR will address DOE/RL-96-0003, Section 4.6.2, "Contractor Input." This will likely include revision of the FSAR to provide additional detail on deactivation activities.

17.4.5 Tailoring of Regulatory Safety Related Documentation

Regulatory safety related documentation deliverables that address the Project integrated safety management approach are tailored commensurate with WTP hazards.

The following subsections describe how the SARs, the SRD, the Radiation Protection Program (RPP) document, the QAM, the Technical Safety Requirements (TSRs), and the emergency response plan are tailored to the reflect the hazards and hazardous situations of the WTP.

Safety Analysis Reports. The format and content of the Preliminary Safety Analysis Report (PSAR) and Final Safety Analysis Report (FSAR) are in accordance with *Safety Requirements Document Volume II*, SRD Vol. II Safety Criterion 9.1, "Safety Analysis Reports" and the implementing standards referenced in that safety criterion. To facilitate the review of the SARs by the regulator, the SAR content also gives consideration to the review guidance developed by DOE. For the PSAR this guidance is provided in *Review Guidance for the Construction Authorization Request (CAR)* (DOE-RL 2001).

The format and content of the SARs are tailored to the nature of the WTP, relative to the hazards and hazardous situations identified by the PHA.

The content of the PSAR and FSAR is tailored to the purpose of these two documents. The PSAR supports the request for the construction authorization by documenting the safety criteria, the principal design and construction requirements, and the initial safety analysis. The FSAR documents application of these criteria to the completed WTP, documents the final safety analysis, and establishes the facility can be operated safely. The PSAR places greater emphasis on design criteria and construction practices than conduct of operations. The FSAR places emphasis on conduct of operation.

Safety Requirements Document (SRD). The SRD, which reflects conformance to DOE/RL-96-0003, DOE/RL-96-0004, and DOE/RL-96-0006, is tailored to reflect adequate control of hazards and hazardous situations associated with WTP design, construction, commissioning, and operation. DOE/RL-96-0006 provides a set of top-level radiological, nuclear, and process safety standards and principles prescribed by DOE for accomplishing the required level of safety for the WTP and is used as one resource for the development of the SRD. Included in DOE/RL-96-0006 are radiological exposure and risk standards for evaluation of normal and off-normal events. Additional resources for the identification of standards in the SRD are derived from commercial nuclear and chemical industries. The tailoring activity for the SRD includes identifying those Safety Criteria that are to accomplish Project activities safely, and then applying the implementing codes and standards to these criteria based on the risks posed by the hazardous situations being controlled. Features controlling hazardous situations with the potential for greater impacts (such as an offsite release affecting the public) have more rigor applied to them than those features controlling hazardous situations with lower impacts.

Radiation Protection Program (RPP) document. The occupational RPP document details the program, standards, requirements, administrative controls, responsibilities, and authorities associated with the scope of WTP radiological protection activities. The RPP specifically documents the program required by 10 CFR 835, "Occupational Radiation Protection". The RPP document is tailored to focus on the protection of worker health and safety in response to the radiological hazards present during given phases in the WTP life cycle. The RPP document provides the regulatory technical basis for the RPP that ensures the radiological safety of facility workers, collocated workers, facility visitors, and the onsite, co-located members of the public.

Quality Assurance Manual. The QAM serves as the Authorization Basis document for implementation of the Project QA program. The QA Program, as described in the QAM, provides assurance that the design, procurement, construction, testing, inspection, operation, deactivation, waste form qualification, modification, and maintenance activities conducted at the facility conform to regulatory and contractual requirements and reflect best industry practices. The extent to which quality requirements are applied to the Project is based on a graded approach, reflecting the safety implications of the activity. Quality-related activities performed by organizations providing equipment, services, or support to the Project are conducted in accordance with the requirements documented in the approved QAM.

Technical Safety Requirements (TSRs). The TSRs will be based on the FSAR safety basis documentation and facility-specific commitments made to support the DOE-approved safety basis for the WTP. They will be tailored to focus on the protection of the public and worker health and safety from radiological, nuclear, and process hazards. The TSRs will be further tailored based on the following needs:

1) Designation of process variables, design features, and operating restrictions that are initial conditions (i.e., reflect the assumed facility state) for accident analysis-credited preferred control strategies to meet public and worker radiological or chemical exposure standards

2) Assurance that SSCs credited for achieving compliance to public and worker radiological and chemical exposure standards will function when required.

The TSRs will be kept current so that they reflect the facility as it exists and as is analyzed in the FSAR. The WTP will be operated to the DOE-approved TSRs.

As the WTP operation nears the end of waste-processing operations, changes will be initiated to the TSRs to control the hazards and hazardous situations associated with deactivation.

Emergency Response Plan (ERP) The WTP emergency response plan documents the provisions for response to operating emergencies. The emergency response plan will establish effective and efficient emergency management operations that provide acceptable levels of protection for WTP workers, Hanford Site employees, and the public. The scope of the WTP emergency management program, from which the emergency response plan is tailored, is determined by performing a Hazards Survey and Assessment for the facility.

The Hazards Survey briefly describes the potential impacts of emergency events or conditions and summarizes applicable federal, state, and local planning and preparedness requirements. The Hazards Survey identifies the required scope of the WTP emergency management program.

17.5 Organizational Structures, Responsibilities, and Interfaces

17.5.1 Organizational Structure

The philosophy of the organizational structure is determined by the need to ensure that safety is achieved while meeting DOE requirements in an efficient manner. The organizational structure presents the BNI approach to assigning responsibility for managing work safely and staffing the organization with suitably qualified and experienced personnel.

The WTP QAM Policy Q-01.1, Figure 1, Overall Management Structure and Organization, depicts the management structure and organization established by BNI for implementing the DC&C contract. The solid lines in the figure represent direct management and reporting responsibilities, whereas the dotted line from the Project Director to the Quality Assurance Manager and the Safety Assurance Manager represents an interface other than a direct reporting responsibility. The project QA Manager and the Safety Assurance Manager report directly to the BNI Corporate QA and Industrial Safety Managers respectively.

The flowdown of health, safety, and environmental responsibility and accountability starts with the Project Director and extends through the management and supervisory chain to each worker regardless of the type of work being performed. This flowdown is captured in policies, manuals, and procedures, communicated to the workforce through orientation and training, reinforced by group and individual performance evaluations, and monitored and assessed by management and by independent oversight organizations.

17.5.2 Organizational Responsibilities

The WTP Project Director has established a policy committing the project to designing, constructing, and commissioning the plant in such a manner as to ensure protection of the health and safety of the public, personnel on site, and the environment.

Accordingly, Contractor roles, responsibilities, and authorities include defining and implementing radiological, nuclear, and process safety (rnps) standards and the related safety bases for protection of the WTP workers, co-located workers, the public, and the environment. The Contractor has sole responsibility for defining and implementing ORP approved safety standards and communicating those safety standards as requirements to all project personnel and subcontractors who conduct work on the project.

Clear unambiguous lines of authority and responsibility are established throughout the Project through its design, ~~contruction~~construction, and commissioning phases. The flowdown of safety management responsibility and accountability starts with the WTP Project Director and extends through the management and supervisory chain to each worker, irrespective of the type of work being performed. This flowdown is captured in policies and procedures, communicated to the workforce through orientation and training, reinforced by group and individual performance evaluations, and monitored and assessed by independent oversight provided by safety management professionals.

Line management is responsible for developing and implementing the safety basis. Although some specific roles may be reassigned within the organization, line management's responsibility for safety may not be delegated. The Environmental and Nuclear Safety (E&NS) organization identifies regulatory requirements that are appropriate for the project, provides guidance for their implementation, and conducts internal oversight activities to ensure institutional safety provisions are implemented. This creates an environment where accountability is clearly focused.

Stop-work authority flows down from senior management to individual workers who are empowered to halt any activity in which they are engaged that is unsafe or potentially harmful to workers, the public, the environment, facilities, or property. Project management is responsible for ensuring the safety of employees and subcontractors, for taking appropriate actions to correct causes for stopping work, and for authorizing the restart of work.

17.5.2.1 Design, Construction, and Commissioning Contractor Roles and Responsibilities

The WTP Project AB documents describe the roles, responsibilities, and authorities, including those related to safety, assigned to individuals and managers during the design, construction, and commissioning phases of the project. The QAM identifies overall WTP Project organization (Policy Q-01.1) and topic specific responsibilities. This section of the PSAR describes specific roles and responsibilities related to safety-related roles. Note: Throughout this chapter, reference to "safety" means radiological, nuclear, and process safety.

Fundamental roles, responsibilities, and authorities related to safety assigned to all WTP managers are:

- Incorporating the Integrated Safety Management System (ISMS) provisions into work processes.
- Developing and maintaining a comprehensive set of management controls.
- Interfacing and communicating with other project managers in accomplishing facility design, construction, and commissioning activities.

Fundamental roles, responsibilities, and authorities related to safety assigned to the Operations Manager include:

- Ensuring that operators become and remain familiar with the features and limitations of components included in the design of the facility.
- Ensuring that the design organization provides appropriate input for pre-operational testing, operating procedures, and the planning and conduct of training.

The BNI WTP Project contractor assigns safety roles to functional areas for key elements of the DC&C phases of the WTP project. The following provides a summary of these roles for project managers during the DC&C phases.

Project Director

The Project Director safety-related roles, responsibilities, and authorities include:

1) Overall responsibility for WTP project safety
2) Instilling a positive culture for safety
3) Defining safety policy, objectives, and interfaces
4) Reviewing at least annually, along with the Project Manager, the adequacy of project activities to comply with the WTP AB
5) Implementing an employee concerns program

Project Manager

The Project Manager safety-related roles, responsibilities, and authorities include:

1) Ensuring implementation of safety policy, objectives, and interfaces
2) Assigning roles and responsibilities for safety-related activities
3) Setting AB safety-related performance expectations
4) Developing and implementing management assessment policies
5) Reviewing at least annually, along with the Project Director, the adequacy of project activities to comply with the WTP AB expectations

Project Controls Manager

The roles, responsibilities, and authorities of the Project Controls Manager are provided in the WTP Project Quality Assurance Manual. There are no additional Project Controls Manager safety-related roles, responsibilities, and authorities to those roles provided in the Quality Assurance Manual.

Area Project Managers

This position is responsible for managing production of engineering design as the WTP Project design agency, and management support for subsequent construction and commissioning activities. The safety-related roles, responsibilities, and authorities of the Area Project Managers, in their respective WTP facility areas of responsibility, include:

1) Managing the production of safety-related engineering designs
2) Ensuring approval by the Manager of Engineering of final designs of Important to Safety features

3) Implementing safety-related management assessment policies.
4) Ensuring the development and implementation of the safety-related incident reporting program.
5) Developing and managing the readiness review program to support commissioning.

Manager of Engineering

The Manager of Engineering serves as the project design authority and oversees the engineering design activities that are assigned to the DC&C contractor, as implemented by the project areas design agency. The safety-related roles, responsibilities, and authorities of the Manager of Engineering include:

1) Ensuring that a safe WTP is designed in accordance with safety-related contractual, policy, law, regulations, authorization bases, and technical requirements
2) Approving final designs of Important to Safety features
3) Developing and implementing the Configuration Management (CM) program to control the safety and design bases
4) Serving as principal interface with DOE on engineering design technical issues
5) Overseeing activities related to radiological, nuclear, and process safety.

Construction Manager

The safety-related roles, responsibilities, and authorities of the Construction Manager include:

1) Ensuring that the WTP is constructed in safe manner, in accordance with safety-related contractual, policy, law, regulations, authorization bases, and technical requirements
2) Implementing procedures and training to enhance construction safety
3) Providing input to the configuration management program including as-built information
4) Supporting the incident reporting system for construction-related incidents
5) Interfacing with subcontractors on process safety management and E&NS matters
6) Implementing the construction testing program to verify that ITS SSCs meet acceptance testing requirements

Environmental and Nuclear Safety (E&NS) Manager

The safety-related roles, responsibilities, and authorities of the E&NS Manager include:

1) Developing and maintaining WTP Project AB documents (excluding the Quality Assurance Manual)
2) Providing support to ensure that the WTP is designed, constructed, and commissioned to meet safety-related laws, regulations, and AB requirements.
3) Developing and implementing safety management programs for nuclear safety, fire protection, and radiation protection
4) Developing and assessing safety-related performance measures
5) Interfacing with regulators, stakeholders, and Hanford Site contractors on safety-related matters
6) Serving as a member of the Project Safety Committee and serving as the PSC alternate chairperson

Safety Assurance Manager

The roles, responsibilities, and authorities of the Safety Assurance Manager are provided in the WTP Project Quality Assurance Manual. There are no unique Safety Assurance Manager safety-related roles, responsibilities, and authorities in addition to those roles provided in the Quality Assurance Manual.

Quality Assurance Manager

The roles, responsibilities, and authorities of the Quality Assurance Manager are provided in the WTP Project Quality Assurance Manual. There are no unique Quality Assurance Manager safety-related roles, responsibilities, and authorities in addition to those roles provided in the Quality Assurance Manual.

The QA Manager has the authority and responsibility to stop project work when the work, if allowed to continue, would result in activities or documents being in noncompliance with stated QA Program requirements. The QA Manager is responsible for determining when appropriate corrective or preventative actions have been taken and for lifting the stop work order to allow work to proceed.

Operations Manager

The safety-related roles, responsibilities, and authorities of the Operations Manager include:

1) Writing and maintaining operating procedures
2) Performing commissioning testing to demonstrate compliance with the acceptance criteria and documenting the results to acceptance criteria.
3) Serving as the chairperson for the Project Safety Committee
4) Developing and managing the readiness review program to support commissioning

Process Operations Manager

The safety-related roles, responsibilities, and authorities of the Process Operations Manager include:

1) Supporting independent safety review in the WTP Project process flowsheet areas of responsibility
2) Developing and evaluating proposed changes to the WTP process flowsheet

Research and Technology Manager

The safety-related roles, responsibilities, and authorities of the Research and Technology (R&T) Manager include:

1) Serving as a member of the Project Safety Committee.

Commissioning/Training Manager

The commissioning/training organization manages the commissioning program. The safety-related roles, responsibilities, and authorities of the Commissioning /Training Manager include:

1) Developing the objectives and scope for the startup program

2) Developing and evaluating proposed changes to the commissioning program
3) Verifying and validating operation and maintenance procedures during performance of testing
4) Providing information from the startup program to the operations, training, and procedures groups, and maintenance for verification and validation of operating administrative controls

Business Services Manager

The Business Services Manager safety-related roles, responsibilities, and authorities include:

The roles, responsibilities, and authorities of the Business Services Manager are provided in the WTP Project Quality Assurance Manual. There are no unique Business Services Manager safety-related roles, responsibilities, and authorities in addition to those roles provided in the Quality Assurance Manual.

Acquisition Services Manager

The safety-related roles, responsibilities, and authorities of the Acquisitions Services Manager include the roles, responsibilities, and authorities of the Acquisitions Services Manager are provided in the WTP Project Quality Assurance Manual. There are no unique Acquisitions Services Manager safety-related roles, responsibilities, and authorities in addition to those roles provided in the Quality Assurance Manual.

Project Archives and Document Control Manager

The safety-related roles, responsibilities, and authorities of the Project Archives and Document Control Manager include:

1) Controlling and maintaining the WTP Project safety-related policies and procedures
2) Developing and maintaining the records management program relative to WTP Project safety-related records

17.5.3 Interface Management Process

The interface management process assures the documentation and management of shared responsibilities among project-affected organizations for (1) services, data, or materials; and (2) development, operation, and maintenance of physically compatible facilities and subsystems.

17.5.3.1 External Interfaces

There are two types of external interfaces for the Project, technical interfaces and regulatory interfaces. This section describes the method of coordinating interface interaction and the process for resolving conflict.

Technical Interfaces - The technical interfaces are managed in accordance with an interface management plan supported by procedures and desk instructions, and documented in interface control documents (ICDs). ICDs detail the information needed to coordinate project activities safely and efficiently with Hanford Site operations. Primary interface management lies with the interface management team (IMT), composed of leadership members from CH2M Hill Group, Inc. (CHG), the WTP Contractor, i.e., BNI and DOE. ICDs are updated every six months throughout the period of the contract performance.

The nature of taking responsibility for transfer of Hanford Tank Farm waste to the WTP requires the resolution of a number of interface concerns. From an early stage, interface meetings were held among the WTP Contractor, the DOE, and the Hanford Tank Farms Contractor to identify and resolve these concerns. Interface responsibilities are agreed on and recorded in the ICDs. Adding concerns to this documentation and accepting their resolution requires approval of all parties involved with the interface issue. If a critical issue is not resolved in a timely manner, a mechanism is in place to elevate the issue for resolution by upper management of the interfacing organizations.

This process ensures that the technical and safety features between the tank farm contractor and the project baselines are fully integrated at the interface. Non-integrated interfaces are forced into "formal" change control to ensure baseline alignment. The interfaces are covered by formal configuration management procedures.

Regulatory Interfaces - A primary regulatory interface between the WTP Project Contractor and the DOE is through the DOE inspection program. The DOE inspection program is described in RL/REG-98-05, *Inspection Program Description for the Regulatory Oversight of the RPP WTP Contractor.* The purposes of this inspection program are described as:

1) Confirming Contractor performance to the authorization basis and Contract in the areas of radiological, nuclear, and process safety
2) Ensuring timely identification and implementation of corrective actions
3) Developing independent inputs for subsequent regulatory authorization or actions thereby fostering regulatory efficiency.

The DOE inspection program is executed in a planned, disciplined, and predicable manner. This is accomplished through appropriate planning, preparation, and performance of inspections and through the use of established protocols.

The project supports the DOE inspection program by:

1) Making available for DOE review, documentation such as program plans, manuals, procedures, instructions, technical reports, self-assessment reports, meeting minutes, records, data reports and event reports
2) Providing briefings and discussions and support interviews on selected subjects as requested by the DOE and prearranged with BNI.
3) Supporting on-location DOE observations of project operations and activities as requested by the DOE and prearranged with BNI.
4) Supporting unannounced on-location DOE observation of project construction, operation, and deactivation activities
5) Attending and supporting pre-inspection and inspection entrance and exit meetings
6) Responding to findings of DOE inspection activities.

The above-mentioned WTP operations and activities to be observed include, but are not limited to, 1) monitoring of equipment performance during operation, inspection, or testing, 2) witnessing of tests, and 3) the performance of independent analyses.

The DOE corrective action/enforcement actions program is described in RL/REG-98-06, *Corrective Action Program Description.* The Project supports the DOE corrective action and enforcement actions program by:

1) Self-identification of non-compliant conditions and the prompt reporting of such conditions to DOE
2) Responding to corrective action notices issued by DOE
3) Prompt implementation of a safety-rework, suspend operation, stop work, and Compliance Orders issued by the DOE.

A number of other external regulatory interfaces are maintained with regulatory organizations external to the Hanford Site (Washington State Department of Ecology, Washington State Department of Health, US Environmental Protection Agency, and Occupational Safety and Health Administration). These interfaces, although not part of the formal interface management system, establish/approve requirements or issue permits applicable to the design and construction of the WTP. These requirements are not primarily directed at radiological, nuclear, or process safety. The WTP Contractor maintains awareness of applicable regulations and interpretations via routine communication meetings with DOE and the regulators and by regular access to regulatory resources, e.g., Code of Federal Regulations, Federal Register, Washington Administrative Code, and governmental web sites.

The E&NS organization manages the interface with the external regulators in the areas of environmental and nuclear safety to ensure that requirements in permits and applicable standards are identified and understood, and actions are implemented to comply with the requirements including resolution of conflicts with design or construction practices. Contractor Business Services performs similar functions for activities that must comply with safeguards and security requirements where DOE is the regulator.

Any conflicts that arise between considerations for safeguards and security and radiological, nuclear, and process safety will be resolved by discussions among the WTP Contractor, DOE, and the external regulators. For construction, plans and procedures have been developed and implemented that define monitoring and reporting activities for this phase of the WTP Project.

Routine meetings between BNI and the DOE regulator offer a forum for identification and discussion of external conflict issues. Permit conditions generally reflect the resolution of issues that have been raised between the WTP Contractor, DOE, and the regulatory agencies. In the event that the permit conditions do not reflect the agreed upon resolution, the Contractor and DOE can comment during the public review process.

When the potential applicability of an existing, new, or revised regulatory requirement is identified, conflicts are evaluated and resolved. The impact on project cost and schedule, along with the feasibility of implementing the requirement, is included in the evaluation. In the cases where safety and environmental regulations conflict, absent the granting of an exemption from the regulation, the more stringent regulation is followed.

17.5.3.2 Internal Interfaces

Formal internal interfaces are managed within the engineering interface control system. The nature of the interfaces within the system includes design responsibilities, information flow, and appropriate documentation. These engineering interfaces are included in the Project Engineering planning process and in the control and execution of the design. An internal interface document is used to capture the functional, physical, or parametric interfaces within the WTP system or system component for each interface identified in a system description.

Most internal interfaces are established in project procedures that identify the responsibilities of individuals and interactions among them. For example, document reviews requiring cross-discipline involvement are performed in accordance with project procedures. Other internal interface activities include the Integrated Safety Management process (section 17.6.1), meetings, and communications.

17.5.4 Staffing and Qualification

Safe and effective design, construction, and commissioning of the WTP depends upon a staff of qualified, competent personnel. It is the project policy to employ only individuals who are qualified by education, industry related experience, and company-sponsored, job-specific training.

The responsible organization identifies those activities that require formal qualification of personnel and the minimum requirements for such personnel. Position descriptions document minimum education and experience requirements for each position commensurate with the scope, complexity, and nature of the work. Only personnel who have experience and education meeting or exceeding the minimum requirements are permitted to perform the organization's activities. Minimum education and experience are verified or, when minimum education and experience cannot be verified, documented justification is provided for the personnel assignment.

When a position is filled, training documents are forwarded to the training organization for record keeping and identification of training needs. Project training provides personnel with the knowledge, skills, and direction necessary to perform their duties in a safe and environmentally sound manner (Chapter 12.0). Training is performed using a tailored approach, commensurate with the level of risk and individual responsibility. The training and development program for the construction phase of the project is described in section 12.4.1.2. The program applies to both manual and non-manual workers.

The project organization shown in the QAM, Policy Q-01.1 Figure 1, is established for the WTP design, construction and commissioning phases and is expected to change to reflect project transitions from one phase to the next. The number of managers, engineers, and support personnel assigned to the project will be adequate to support concurrent design and construction activities. As the project transitions from design to construction, and then to commissioning, staffing levels will be adjusted to ensure that an adequate number of qualified personnel are available for safely and efficiently performing the required work.

17.6 Safety Management Policies and Programs

Administrative policies and programs control the interactions among the project organizations and activities through the integration of safety management into work planning and performance. Such integration protects workers, the public, and the environment by implementing work practices that assist in ensuring the work is performed systematically and correctly.

The following safety management programs are discussed in the remainder of this chapter.

- Section 17.6.1, Project Integrated Safety Management Approach
- Section 17.6.2, Safety Review and Performance Assessments
- Section 17.6.3, Configuration Management
- Section 17.6.4, Document Control and Records Management
- Section 17.6.5, Authorization Basis Management
- Section 17.6.6, Unreviewed Safety Question Process
- Section 17.6.7, Occurrence Reporting
- Section 17.6.8, Safety/Quality Culture

17.6.1 Project Integrated Safety Management Approach

The Integrated Safety Management approach is implemented with the recognition that the defined work of processing and immobilizing Hanford tank waste involves inherent radiological and chemical hazards from which hazardous situations may arise. The WTP Project Integrated Safety Management Plan that furnishes an overview on how DOE/RL-96-0003 requirements for a WTP Project Integrated Safety Management Plan ~~is provided for~~ are addressed by the Project. The ISMP provides a mapping of where the DOE/RL-96-0003 section 4.1.2.11 requirements for an ISMP are met in the PSAR Volume I and other AB documents.

The WTP Project integrates the development of safety criteria and design requirements, the hazard analysis and accident analysis processes, and the facility design to minimize the risk associated with these hazards and hazardous situations.

The WTP Contractor accepts responsibility for the safety of the WTP and for adequate protection of the health and safety of the public, worker safety, environmental protection, and compliance with applicable laws and regulations.

The safety approach for the Project is based on applying best industry practices and cost-effective processes that come from successful and safe operation in the commercial nuclear environment and the chemical process industry. The purpose of the WTP Project integrated safety management approach is to achieve the following objectives:

1 Ensure adequate level of safety at the facility for the workers and the public
2 Comply with applicable laws and regulations
3 Conform to top-level safety standards and principles stipulated in DOE/RL-96-0006

A diagram of the project integrated safety management approach is presented in Figure 17-1. The safety approach begins with the definition of the work to be performed and continues with the development of the conceptual process flow diagrams and other facility design information required to accomplish the defined work. This conceptual information, which takes into account the hazards identified for similar facilities and the methods by which these hazards were previously eliminated or controlled, is used to identify appropriate hazards-based standards and initiate the development or updating of the SRD.

The safety management processes governing radiological, nuclear, and process safety are identified and developed as a part of development, implementation, and maintenance of the SRD. Development of standards-based safety management programs, through the safety approach as part of the SRD development, has the following benefits:

1) Continually integrates hazards identification, SRD development, design development, and accident analysis during all phases of the facility life cycle through deactivation
2) Documents the safety management process drivers within the SRD. It also ensures the processes are established in accordance with the applicable regulatory, commercial, and U.S. Department of Energy (DOE) standards and the DOE Top-Level Safety Principles as appropriate to control hazards and hazardous situations associated with the WTP.
3) Adopts the use of "best industry practices" that include process safety management, a rigorous design process based on a set of credible accidents and a defense-in-depth philosophy, and verification of the level of facility safety through safety analysis and validation of requirements implementation
4) Documents that the facility design meets the required Safety Criteria and documents how and why the engineered and administrative controls credited for public and worker safety were identified. During commissioning, when policies and procedures are finalized to implement the administrative controls developed during the during the design, construction, and commissioning phases of the WTP Project, these final versions of operational policies and procedures will be identified in the SRD.

Through the SRD development process safety management programs are identified that:

1) Directly implement regulatory requirements for programs that provide protection of the public and workers from radiological, nuclear, and process hazards (e.g., Radiation Protection Program)
2) Are credited for providing adequate protection to the worker or public (e.g., Emergency Preparedness Program)
3) Place controls on the design, operations, or maintenance of structures, systems, and components (SSC) that are credited for providing adequate protection to the worker or public (e.g., Configuration Management, Conduct of Operations, Quality Assurance, Maintenance).

The majority of policies, procedures, and instructions fully defining the safety management programs will be developed and tailored prior to commissioning of the WTP. Procedural development will be based on accepted industry practices for ensuring safety through adequate training, conduct of operations, and engineering and design programs. Procedures will be developed internally by the responsible Project organizations.

When developed, these policies, procedures, and instructions (administrative standards) are linked to the driver requirements (Safety Criteria) contained in the SRD. This linking of implementing standards to Safety Criteria ensures that the safety management programs, as defined in the SRD, are fully implemented.

In addition, the consensus codes and standards in the SRD are used in the design of SSCs are linked to SRD Safety Criteria. This link is implemented through Project documents like the Design Input Memorandum. These links are controlled to ensure that configuration management of the linkage to the SRD is maintained at all times.

A key feature of the SRD maintenance process is the ability to effect changes to the SRD (when such a change is appropriate). SRD changes may arise as a result of design evolution or may be identified through the hazard evaluation process. Changes of the first type occur when a proposed design position offers benefits (cost, safety, reliability) but is not fully in compliance with the SRD as written. Changes of the second type may result from newly identified accidents or off normal conditions. In either case, all activities are documented, and no change to the SRD is initiated without a formal review for compliance with the standards and requirements on which the SRD is based.

A description of the elements of the WTP Project integrated safety management approach is provided in the following subsections.

17.6.1.1 Identification of Work, Hazards, Controls, and Standards

In order to ensure adequate safety of workers and the public and protection of the environment, the laws, regulations, and standards applicable to the radiological, nuclear, and process safety aspects of the Project are incorporated into programs for facility design, construction, and operation.

The identification and characterization of the hazards and hazardous situations establish a basis for describing approaches and measures to control the hazards. Safety criteria are then developed that document the set of standards and requirements necessary to ensure implementation of the necessary hazard control strategies. These safety criteria are documented in the SRD and are based on applicable laws and regulations, the DOE's top-level safety requirements, and best industry practices. The SRD provides safety criteria to the hazard analysis process by which an initial assessment of the adequacy of the design is made.

The Safety Criteria and codes and standards of the SRD are applied to the WTP. The SRD applies to Project contractors and subcontractors. By application of the SRD to all Project activities, a consistent project-wide approach is applied to radiological, nuclear, and process safety matters. The hazards and hazardous situations at the facility will change significantly throughout the construction, commissioning, operation, and deactivation phases of the project. The SRD is developed by an iterative process that will continue as the design matures through the construction, commissioning, operation, and deactivation of the facility. The development involved identifying the work to be performed, identifying hazards and hazardous situations of the facility operation by the hazard assessments and accident analyses, reviewing of pertinent regulations and industry practices, and identifying engineered and administrative controls.

Once the work activity is identified for the project and the hazards associated with this work determined, the Safety Criteria are defined by the requirements necessary to ensure protection of the public and workers from radiological, nuclear, and process hazards. The Safety Criteria are based on the following:

1) Mandated regulatory requirements (statutory and contractual; including those identified as top-level safety requirements [standards and principles]) and equivalent requirements
2) Requirements and guidance documents deemed relevant to waste management facilities such as this Project
3) Best industry practices from the government, commercial nuclear, and chemical industries

The engineered and administrative controls necessary to eliminate and control hazards and hazardous situations are established via the hazard assessment, the accident analysis, and the necessary level of protection required to satisfy the SRD Safety Criteria. Once the controls are selected, the SRD identifies the implementing codes and standards necessary to ensure that engineered and administrative controls are properly designed, implemented, and maintained. The requirements, guidance documents, and practices are incorporated into the SRD, tailored toward applicability to WTP operations, the control of hazards, and the adequacy to protect public and worker health and safety. These codes and standards are used by the appropriate organizations to ensure that the design, construction, testing, and maintenance of Important-to-Safety SSCs are such that they can perform their specified public and worker safety functions when required.

17.6.1.2 Feedback Mechanisms for Design and Controls

As accident prevention and mitigation safety features are identified in the PHA, the resulting facility design impacts are fed back to the SRD process, as required, for further development of more detailed safety criteria and design requirements to ensure all safety features provide their specified safety functions.

As facility design mature, accident analyses are performed to confirm judgements made during the process hazard analysis (PHA) and to further characterize the accident scenarios to demonstrate compliance with radiological and chemical exposure standards for accidents. Additional protection for workers is identified by the PHA, the accident analyses, and the application, as appropriate based on exceeding threshold quantities of hazardous process materials, of process safety management requirements of 29 CFR 1910.110.

17.6.2 Safety Review and Performance Assessments

Safety reviews and performance assessments verify that public and worker safety considerations, and protection of the environment are reflected in the design, procurement, construction, and commissioning of the facility. Internal safety oversight is provided by the Project Safety Committee (PSC). Safety reviews are also conducted in accordance with the AB management process (section 17.6.5) and, beginning with Hot Commissioning, the proposed USQ process (section 17.6.6).

Performance assessments performed by the WTP Project that support safety performance evaluation, among other assessments, include management assessments and independent assessments.

17.6.2.1 PSC Safety Oversight

The Project Safety Committee (PSC) is part of the overall internal safety oversight for the WTP Project. A main role of the PSC is to serve as the independent review team (IRT) required by DOE/RL-96-0004. This role shall include confirming the set of radiological, nuclear and process standards recommended by the Process Management Team (PMT). The PSC defines a review approach, carries out review and comment on the proposed standards, and documents the findings of the review. Resolution of PSC comments shall be documented.

PSC internal safety oversight roles and responsibilities also include reviewing the following items as they apply to radiological, nuclear, and process safety, and providing recommendations to senior project management as appropriate:

- AB regulatory compliance issues
- AB development and maintenance
- Programmatic trends for conditions adverse to quality associated with AB compliance
- Occurrence reports and lessons learned processes effectiveness
- Results from ad hoc assessments requested by the PSC

PSC members shall be selected from several different WTP project organizations and backgrounds to ensure that review is representative of an integrated evaluation of the radiological, nuclear, and process safety matters under consideration. The PSC may make use of subcommittees, as appropriate, to provide oversight to specific WTP Project functional areas or to complete specific radiological, nuclear, and process safety-related review tasks or evaluations.

Relative to radiological safety, the ALARA subcommittee (ASC) is a standing subcommittee of the PSC that is established to review radiological protection/ALARA documents and address matters related to radiological protection and ALARA performance. The ASC supports WTP Project safety improvement as an integrated subcommittee consisting of appropriately qualified individuals appointed by the chairperson of the PSC. In addition to the ASC, as a specific subcommittee used to support the PSC, other WTP Project programs serve to "umbrella" safety improvement initiatives (e.g., quality improvement, management assessment, corrective actions, lessons learned).

As needed, when the Project moves from the design/construction phase to the commissioning phase, the current ASC safety improvement program approach can be expanded to include other radiological, nuclear, and process safety improvement program approaches or safety committees applicable to the commissioning phase.

17.6.2.2 Management Assessments and Independent Assessments for the WTP Project

WTP Project approach taken to provide management assessments and independent assessments, as detailed in the WTP Project QAM, is summarized as follows.

- Management assessments - managers assess the activities of their organizations in order to identify and correct problems hindering the organization from achieving its objective. Formally assessing the organization allows the manager to identify its strengths and weaknesses in a disciplined manner and make appropriate improvements. This type of assessment is discussed in Policy Q-18.3, Management Assessment, of the QAM, which addresses the purpose, implementation strategy, policy, conduct, and managers' responsibilities in the assessment process.
- Independent assessments - individuals who are independent of the organization performing the activity being assessed measure item and service quality, measure the adequacy of work performance, and promote improvement. This type of assessment is discussed in Policy Q-18.1, Independent Assessment (Audit), of the QAM. The QAM addresses the purpose, implementation strategy, policy, and conduct of independent assessments; and the independence and qualifications of assessment personnel, documentation of results, management responses and actions, and responsibilities in the assessment process.

The project's audits and assessments address at least the following safety areas: AB management, radiological controls, nuclear criticality safety (as appropriate), chemical process safety, fire safety, emergency management, environmental protection, quality assurance, configuration management,

maintenance, training and qualification, procedures, human factors, occurrence reporting including incident investigation, and records management.

Safety related performance monitoring and performance indicators are used on the WTP Project to verify that safety and other WTP programs, plans, and procedures exist; are in place; are adequate; are functioning as designed; and are in compliance with applicable regulatory or permit requirements. Performance monitoring is addressed as an element of the QAM Policy 18.3 on Management Assessment and, in general, includes, but is not limited to, reviewing records, plans, and procedures; visually observing operations/activities; and interviewing key personnel. Findings are provided in written reports with recommendations for improvements as applicable. During design and construction, the findings are provided to the Project Manager and during pre-operational testing, operation, and deactivation, the findings are provided to the Facility Managers.

Current performance monitoring/performance indicators related to safety that support design and construction activities on the WTP Project (i.e., industrial safety related performance monitoring/performance indicators, such as total recordable case rate and occupational safety and health cost index) are not related to radiological, nuclear, and process safety. As needed, when the project moves from the design/construction phase to the commissioning phase, the current industrial safety related performance monitoring/performance indicators (as addressed in the project procedure for safety performance objectives, measures, and commitments) can be expanded to included radiological, nuclear, and process safety performance monitoring elements.

17.6.3 Configuration Management

The WTP Configuration Management Program ensures that programmatic objectives related to radiological, nuclear, and process safety are achieved as changes to the project technical baseline are made. This applies to ~~Safety Design Class and Safety Design Significant~~ ITS SSCs as a minimum, plant installed software, project interfaces, and AB requirements during design, construction, and commissioning. The configuration management program is based upon ISO 10007:1995(E), *Quality Management - Guidelines for Configuration Management.* The program is implemented through project plans and procedures to ensure that:

- The engineered configuration of the project is controlled to ensure it meets design, performance, and acceptance requirements.
- Approved configuration changes are assessed for their impact on performance and safety.
- The configuration status of the technical baseline is maintained.

The WTP configuration management approach consists of applying four basic elements, as follows:

Identification and Documentation
The activities comprising selection of configured items, documenting their physical and functional characteristics, and allocating a unique identification to the configured items. Contract requirements, safety features and design criteria are identified and maintained in databases for project personnel.

Change Control
Changes to configured items and requirements are controlled under the configuration management program after formal issue of their configuration documents. Change control is a formal process comprised of documentation, evaluation, approval, and implementation. Procedures are developed to manage changes to the project technical baseline, process chemicals, technology, equipment, and

procedures, together with changes to facilities that affect a covered process. The procedures ensure that changes are evaluated for technical justification, compliance with the authorization basis, process safety, codes, standards and environmental regulations, and for indirect impact to other disciplines or activities.

Status Tracking and Reporting
Formal recording and tracking of configured items and their approved changes. Information is recorded, entered into data management systems and relationship links established. Reporting capabilities are available throughout the configured item lifecycle.

Configuration Audit
Examination of configured items and documentation is performed to verify compliance with the approved configuration baseline. Configuration audit consists of both functional and physical confirmation. Functional confirmation is accomplished through review, inspection, and test records that functional and performance requirements are achieved. Physical confirmation is accomplished by examining configured items for compliance to configuration documents.

The configuration management organization develops, maintains, and provides training on the configuration management program for the project. This training is provided to employees as part of the Safety and Quality Design Required Training.

Implementation of configuration management is assessed through management self-assessments and independent assessments performed by Quality Assurance to verify compliance with approved project procedures.

The WTP Project Director provides direction for the Configuration Management Program and is the *RPP-WTP Configuration Management Plan* approval authority. The Manager of Engineering (MoE) develops the Configuration Management Program and oversees its implementation on the WTP Project. This responsibility is achieved with a configuration management organization including the MoE and line management. The Configuration Management Manager / Supervisor maintains the *RPP-WTP Configuration Management Plan*, maintains computer-based training for the configuration management process, and reviews procedures that implement the configuration management process for consistency with requirements.

Engineering defines and approves changes to the Technical Baseline including review and approval of design changes and disposition of select nonconformances and deviations identified by other organizations.

Line managers implement configuration management through procedures for their specific areas of responsibility to ensure that WTP Project structures, systems, and components and interfaces are designed, constructed, tested, commissioned, operated, and maintained in accordance with the Authorization Basis, applicable regulations, and policy for configuration management. Affected organizations review and concur with project procedures including those that implement the configuration management process. These implementing procedures define individual position responsibilities in a step-by-step process.

Organizations that manage or interface with subcontractors or suppliers of items, activities, or services involving configured items flow down applicable requirements to ensure the configuration management process is properly implemented.

17.6.4 Document Control and Records Management

Document control procedures prescribe the process for preparing, reviewing, approving, storing, and maintaining specified project documents in either hard copy or electronic media. The procedures also establish measures for ensuring that current documents, including revisions are distributed and used at the location where the work is being performed.

The documents describe, define, specify, report, or certify activities, requirements, procedures, results, or plant conditions. They also prescribe processes, specify requirements, or establish design.

QAM requirements for the project records ~~mangement~~management system is provided in Policies Q-06.1, "Document Control", and Q-17.1, "QA Records" of the QAM. These requirements ensure that records are legible, identifiable, retrievable, and protected against damage, deterioration, or loss.

17.6.5 Authorization Basis Management

Changes to the WTP that are proposed during the design, construction, and commissioning phases are reviewed in accordance with the Authorization Basis management process for determining whether prior DOE approval is required.

Changes that impact the project Authorization Basis include those involving the facility design and administrative controls (e.g., procedures, programs, plans, or management processes) that are described in the Authorization Basis, or are relied on to ensure conformance to the authorization basis. Changes to the authorization basis are controlled by the configuration management program and performed by qualified personnel in accordance with project procedures.

AB documentation includes that information submitted in connection with a request for Standards Approval, a request for Construction Authorization, or a request for Operations Authorization as described in DOE/RL-96-0003, Revision 2, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*, and any other information submitted by the WTP Project Contractor in connection with these requests. Amendments to this information may be in the form of revisions to the previously submitted documents, or new information that supplements previously submitted information. The AB begins at the Standards Approval regulatory action and continues throughout the design, construction, commissioning, operation, and deactivation of the WTP.

Other documents generated by the regulator or the WTP Project Contractor may become part of the AB for the project. This includes correspondence concerning the safety aspects of the facility design, construction, operation, and plans for deactivation.

In accordance with *DOE Position on Contractor Initiated Changes to the Authorization Basis*, RL/REG-97-13, the Contractor may make changes to the facility or administrative controls if a review of the AB is performed and either:

- The review demonstrates that a proposed change is consistent with the existing AB, or
- The AB is revised or amended prior to the implementation of the proposed change.

During the DC&C phase of the WTP Project the contractor may authorize changes to the facility that deviate from the AB, prior to DOE approval, if the associated changes continue to provide adequate

safety to workers, the public and the environment and are implemented in accordance with a BNI safety management process that is consistent with this section.

17.6.6 Unreviewed Safety Question Process

The unreviewed safety question (USQ) process, will be ~~effective following Final Safety Analysis Report approval and implementation for the operations phase (beginning with hot commissioning),~~ established during implementation of the approved Final Safety Analysis Report which will precede start of the hot commissioning portion of the operations phase. The USQ process will allow project management to make changes to the facility, the procedures, and the AB documents; and to conduct tests and experiments at the facility without prior DOE approval in some cases. It must be established, however, that these changes do not explicitly or implicitly impact the safety basis of the facility, which is comprised of all AB documents including the facility TSRs.

A proposed change, test, or experiment involves a USQ if, 1) the probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analyses could be increased, 2) the possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analyses could be created, 3) a margin of safety is reduced; or 4) the documented safety analysis may not be bounding or may be otherwise inadequate. The existence of a nonconforming and degraded condition does not automatically require a USQ evaluation. ~~However, a USQ evaluation is required if the condition or the implementation of the resolution for the condition is a change to the facility that potentially creates one of the conditions cited above~~ However, a USQ evaluation is required for a nonconforming or degraded condition if the resolution of the condition is to "use-as-is" or "repair". A USQ evaluation would also be required for an interim compensatory action that is proposed to deal with the degraded or non-conforming condition as part of the disposition process.

Following approval and implementation of the project AB documents for operation, proposed temporary or permanent changes to administrative and engineered controls are reviewed by qualified USQ evaluators to determine if they would involve a USQ. If the proposed change involves a USQ, one of the following three options is pursued.

1 The proposed activity is abandoned.
2 The proposed activity is modified to eliminate the USQ.
3 The proposed activity is submitted to the regulator for review and approval prior to initiating the activity, if initiation of the activity would itself involve a USQ, or implementing the proposed change.

The DOE also must be notified and a USQ determination conducted when a potential inadequacy in the safety analysis is identified. In this case, situations of concern are those wherein it is found that the current safety analysis may not be bounding or the current safety basis may be otherwise inadequate. This situation could arise from a concern that the current safety analysis may be in error or because the facility configuration may be different from the configuration that was analyzed.

To complete a USQ evaluation, the AB documents are reviewed to determine the impact of the proposed change, test, or experiment on the safety analyses. The USQ evaluation including the basis of the determination is documented and maintained as a record. Changes to the AB documents will be incorporated based on the USQ evaluation results and submitted to DOE on a schedule corresponding to the updates of the AB document. The submittal will include a report summarizing all situations for which

a safety evaluation was required and indicating all "changes" considered in a safety evaluation and implemented three months or more before the submittal date of the AB document.

The following organizations have key roles in the project USQ process:

- The E&NS organization will develop the USQ procedure, develop the training and qualification requirements for USQ evaluators, and maintain the list of qualified evaluators.
- The E&NS Manager will approve the USQ procedure and the training and qualification requirements for USQ evaluators.
- The Configuration Management organization will support the project functional organizations in establishing procedures requiring the performance of USQ evaluations of proposed changes, tests, and experiments.
- The PSC will approve a positive USQ determination prior to its submittal to the DOE for approval.

17.6.6.1 Temporary or Permanent Changes to the WTP as Described in the Safety Basis

A change is a permanent or temporary modification or replacement of a feature of the WTP with one that is not equivalent to the original in the design requirements. For example, changes may include jumpers and lifted leads, temporary shielding on pipes and equipment, temporary blocks and bypasses, temporary supports or other equipment used on a temporary basis. Additions (e.g., new systems or structures) and subtractions (e.g., abandoning a system or component in place) are also considered to be changes for purposes of determining if the facility is changed.

Changes to structures, systems, and components not explicitly described in the safety basis are also reviewed because they have the potential for affecting the function of SSCs that are explicitly described. In addition, the process of implementing the change is reviewed for possible development of a USQ.

Changes that alter the design, function, or method of performing the function of an SSC, as described in the safety basis, are within the scope of the USQ evaluation process.

17.6.6.2 Temporary or Permanent Changes to WTP Procedures

Procedures within the scope of the USQ process include operating, chemistry, system, test, surveillance, and emergency procedures that specifically implement provisions of the safety basis.

Changes to activities or controls over functions, facility configuration, task reviews, tests, or safety review meetings that are described or defined in the safety basis are also evaluated as potential USQs.

Changes that result in system operation in a way that deviates from the system operation described in the safety basis (in words or drawings) are within the scope of the USQ evaluation process.

17.6.6.3 WTP Tests or Experiments Not Described in the Existing Safety Basis

A test or experiment is a special procedure for a particular purpose or an evolution performed to gather data. A test or experiment not described in the safety basis documents (that potentially impacts SSCs or processes described in the safety basis) is evaluated to determine if a TSR change or USQ is involved.

17.6.6.4 Changes to a System or Component as Described in the Safety Basis

A change to a safety basis document is within the scope of the USQ process. In addition, differences between the facility and the corresponding description in the safety basis are defacto changes that are within the scope of the USQ evaluation process.

17.6.6.5 Potential Inadequacy in the Existing Safety Analyses (PISA)

Written USQ determinations are required when a potential inadequacy in the existing safety analyses that support the DOE-approved safety basis is discovered. The PISA indicates that the safety analysis may not be bounding. Because the inadequacy has the potential to call into question the information that DOE relied upon in authorizing operations, the project will:

1 Take appropriate action to place or maintain the facility in a safe condition
2 Expeditiously notify DOE upon discovery of the information
3 Perform a USQ determination and submit it promptly
4 Complete an evaluation of the situation and submit it to the DOE prior to removing any operational restrictions implemented to compensate for the analytical discrepancy

If a USQ is determined to be present, the safety evaluation will require not only DOE review but also its approval of resulting changes, before any operational restrictions are removed.

17.6.6.6 Margin of Safety

Margin of safety is the level of confidence that is assigned to the integrity of radiological or hazardous material control measures such as confinement barriers. It is defined as the range between the design acceptance limits and the design failure point of the control feature. The design acceptance limits for radiological or hazardous material control measures such as confinement barriers are established during the design of the facility. These criteria are given in terms of those physical parameters that define their performance. Whenever the values of the design acceptance limits are exceeded, the margin of safety, and, therefore, the confidence in the integrity of the control feature, is decreased. In the event that the margin of safety is reduced, the section 17.6.6.5 actions are performed.

17.6.7 Occurrence Reporting

The WTP project occurrence reporting program provides for the timely identification, categorization, response, notification, investigation, and reporting of abnormal events and conditions. The program also includes the processing of that information to identify the root cause, direct cause, and contributing cause; and to develop appropriate corrective actions to prevent recurrence. Similar occurrences can be prevented by the identification of good practices and lessons learned. The occurrence reporting process is established in a project plan and procedure in accordance with the requirements of DOE Order 232.1A, *Occurrence Reporting and Processing of Operations Information*, and its associated manual, DOE Manual 232.1-1A.

The occurrence reporting process described in this PSAR is applicable to the design and construction phases of the project including cold commissioning. This scope is consistent with the project's Construction Occurrence Reporting Plan. The Occurrence Reporting Plan for hot commissioning and operations will be completed prior to hot commissioning.

17.6.7.1 Organizational Responsibilities for Occurrence Reporting

The WTP Project Director is responsible for ensuring the development and implementation of the occurrence reporting program. As a delegated responsibility, the Site Manager appoints an Occurrence Report Coordinator (ORC) who is available at all times to carry out the responsibilities for categorizing, notifying and reporting events and conditions. The E&NS organization will review and approve all notification, update, and final reports prior to uploading them into the DOE Occurrence Reporting and Processing System (ORPS) database.

The project staff is responsible for promptly notifying project management of events or conditions that adversely affect, or could adversely affect public and worker safety and health, quality assurance, security, construction, or the environment. Reportable occurrences include emergencies, unusual occurrences, and off-normal occurrences associated with the Project. The ORC reports all occurrences to the ORP Facility Representative (FR), and the Hanford Occurrence Notification Center (ONC).

The ONC will report occurrences to the DOE Headquarters and other offsite agencies. The ORC is responsible for investigating or designating a team leader for investigating a reportable occurrence, preparing and submitting a report, and trending the investigation results and corrective actions.

17.6.7.2 Discovery and Reporting

Any employee observing events or conditions that have or could have an adverse effect on personnel safety and health, quality assurance, security, operations, or the environment must report the situation to a supervisor immediately. The employee may mitigate the consequences of the event if it does not endanger himself or others. A supervisor observing such a situation or having it reported to him must immediately notify the ORC, initiate or complete immediate actions for stabilizing the situation and ensuring injured personnel are treated, and preserve conditions for a future investigation. Stabilizing the work area or operation to a safe condition takes precedence over notifications.

17.6.7.3 Categorization of Occurrences

Occurrences are categorized as soon as reasonably possible and, in all cases, within 2 hours following identification of the event or condition. Identification is defined as the time the ORC is informed of the event. An occurrence is categorized as an emergency, unusual occurrence, or off-normal occurrence. An emergency is the most serious occurrence and requires an increased alert status for onsite personnel and, in specified cases, for offsite authorities. If an event or condition meets an occurrence threshold and it is not categorized as an emergency, it is categorized as an unusual occurrence or an off-normal occurrence. The classification and notification requirements of emergencies are summarized in Chapter 15, Emergency Preparedness.

An unusual occurrence is a non-emergency event or condition that exceeds the off-normal occurrence threshold criteria. Off-normal occurrences are abnormal or unplanned events or conditions that adversely affect, potentially affect, or are indicative of degradation in the safety, safeguards or security; environmental or health protection; performance or operation of a facility.

If categorization is not clear or the occurrence exceeds the threshold of more than one criterion, the occurrence is categorized at the higher level being considered. As an example, discovery of a defective item, material, or service, normally reportable as an off-normal occurrence, that caused the reduction of

safety margin below that prescribed in the AB, would be reported as an unusual occurrence. The selected category also may be changed to a higher or lower category as additional information is obtained or as the event progresses.

The criteria developed for the project for categorizing unusual and off-normal occurrences are organized in ten groups, each group relating to a specific area of DOE operation. Some of the groups and the events or conditions in a group are not applicable to the project during the construction phase.

17.6.7.4 Occurrence Notifications

The DOE is informed orally as soon as practicable and, in all cases within 15 minutes, following discovery of a potential emergency event or condition (Chapter 15). The FR and the Occurrence Notification Center (ONC) are notified orally within 90 minutes after categorization of an event or condition as an unusual occurrence and within 30 minutes if it meets the criteria of an abnormal event. The FR is notified orally as soon as practical after categorization of an event or condition as an off-normal occurrence, and the ONC within 2 hours.

A written notification report is prepared and submitted as soon as practical but, in all cases, before the close of the next business day from the time of the categorization (not to exceed 80 hours). The notification report will be submitted electronically, see discussion in section 17.4.7.6, Reporting and Processing System Database.

If an event or condition falls below the reporting thresholds, the ORC will notify the project responsible manager by the close of business (or within 80 hours). The manager will review the event or condition, and at his discretion, initiate an internal investigation in accordance with the project root cause analysis procedure.

All occurrences are reported to the *Price-Anderson Amendment Act* (PAAA) Coordinator for performing an evaluation to determine if the occurrence represents a possible PAAA nuclear safety requirement noncompliance in accordance with 10 CFR 820, *Procedural Rules for DOE Nuclear Activities*. Project Management is informed of the results of the evaluation and appropriate actions initiated.

Notifications to state or Federal agencies of occurrences affecting state or Federal permits or regulations are made in accordance with project procedures. In some cases, an occurrence report to the ORP and the DOE Headquarters - Emergency Operations Center may be required in addition to the state or Federal agency reporting requirements.

17.6.7.5 Occurrence Investigation and Analysis

The investigative process is used to gain an understanding of an occurrence, its underlying causes, and to identify corrective action recommendations for preventing recurrence. All occurrences must have some degree of investigation. A graded approach is applied by the ORC in determining the type and level of effort required to investigate the cause of the occurrence. The graded approach is based on the severity or risk associated with the event or condition (categorization). The investigation can take the form of a meeting with involved individuals, a single person gathering information, a critique, or a root cause analysis team trained in accident investigation techniques conducting a formal investigation. Regardless of the approach, the investigator(s) are independent of the line function(s) involved with the occurrence.

The investigation is initiated as soon as possible commensurate with the safety significance of the event and facility safety but not later than forty-eight hours following the occurrence.

A formal investigation, if required, is conducted in accordance with project procedures for root cause analysis. The investigation team will consist of members having technical expertise in the event under investigation and who are independent with no bias or vested interest in the investigation results. The team members will be trained in accident investigation techniques.

A report is prepared at the conclusion of the investigation, and reviewed by all affected personnel whose job tasks are relevant to the occurrence findings. Investigation may be documented by completing the required field entries when generating an ORPS database report (see section 17.6.7.6). The investigation report will include, at a minimum, the date of the incident, the start date of the investigation, a description of the incident, the factors that contributed to the incident, and recommendations resulting from the investigation.

The categorization process is not the only factor that determines the extent of an occurrence investigation. For example, occurrences that are repeat occurrences will receive more in-depth investigation to determine the reason for ineffectiveness of the corrective actions. Where repeat occurrences or recurring causes are indicated, prompt follow-up action is initiated to identify additional corrective actions for precluding recurrence. These additional corrective actions are tracked to completion and their adequacy verified to ensure correction of the problem. An evaluation is also conducted for repeat occurrences to determine if the trend represents a programmatic failure reportable under 10 CFR 820, *Procedural Rules for DOE Nuclear Activities.*

The training and QA organizations jointly identify root cause analysis methods for use on the project. This may include an evaluation of the course, training materials, instructors, and testing or qualification requirements. Following a training session, the training organization retains evidence of the completion of the course for each trainee, and when requested, provides the names of personnel qualified to perform a root cause analysis.

17.6.7.6 Reporting and Processing System Database

When an event has been categorized as an occurrence, the centralized DOE electronic database ORPS is used to upload and distribute a notification report documenting the occurrence. The notification report is submitted as soon as practical, but in all cases before the close of the next business day from the time of the categorization (not to exceed 80 hours).

Update and final reports are also uploaded in the ORPS. The update reports document changes in categorization, significant or new information about the occurrence, recurring consequences or additional component defects. The update report is submitted, as soon as practicable, but in all cases, before the close of the next working day from the time of re-categorization of the event or condition (not to exceed 80 hours).

The ORPS database is updated with a final report when an analysis of the occurrence has been completed, and the significance, nature, and extent of the event or condition is identified, the root cause, contributing cause(s), direct cause(s) are identified, corrective action(s) to be taken to correct the condition and prevent recurrence scheduled, and lessons learned identified. A final occurrence report is prepared as soon as practical but within 45 calendar days of the occurrence categorization. The report will be retained in the ORPS database for a term determined in accordance with DOE's procedure.

Under certain conditions, a roll-up report can be submitted in lieu of a new occurrence report when a similar reportable event occurs and a previously uploaded final occurrence report documenting the similar type event has been submitted.

The FR is notified of an occurrence prior to uploading the notification, update, and final occurrence reports to the ORPS database.

17.6.7.7 Corrective Action Determination

Corrective actions identified in the occurrence report will be promptly performed. Occurrences that are also conditions adverse to quality will be corrected in accordance with QAM Policy Q-16.1, Corrective Action.

17.6.7.8 Lessons Learned

The lessons learned program includes the identification and dissemination of lessons learned information for the project. The project occurrence reports are maintained and evaluated by the ORC for lessons learned that can be used for improving project performance. Also, the ORPS database is reviewed regularly to identify good practices and lessons learned from similar DOE facilities and reviews relevant events in other technical domains that can be used at the project.

The Lessons Learned Coordinator distributes lessons learned to the appropriate organizations or individuals within the facility including the training department. Information relating to occurrences is evaluated by the training department for incorporation into project training materials. Personnel potentially affected by lessons-learned material can participate in this process by providing feedback on information distributed and identifying information for potential inclusion in training. If applicable, safety and hazards analyses are reviewed and revised, procedures are modified, maintenance practices are changed, and AB documents are revised to incorporate lessons learned that should avoid a recurrence of an adverse work practice or operating experience and lead to improved operations.

17.6.7.9 Feedback and Trending

Trending of project occurrence information, within various performance areas, is used for early identification and correction of deteriorating conditions or potential programmatic failures. The trend data also provide indication that continuous improvement is being achieved in the project. If repeat occurrences or recurring causes are indicated, prompt follow-up action is initiated to identify additional corrective actions for precluding recurrence. The additional corrective actions are tracked to completion and their adequacy is verified to ensure correction of the problem.

An evaluation is also conducted to determine if the trend represents a programmatic failure reportable under 10 CFR 820 (see section 17.4.7.5, Occurrence Investigation and Analysis).

17.6.8 Safety/Quality Culture

Safety/quality culture includes characteristics and attitudes in organizations and individuals that establish safety and quality as overriding priorities. The project approach for developing and maintaining a safety/quality culture includes establishing policies and programs for ensuring that (1) safety awareness is

a primary concern of Project Management, and (2) employees at all levels of the project are aware that they have an obligation for ensuring work is conducted safely.

Other policies that establish standards of conduct and job site work rules are communicated to employees. The policies empower WTP employees to stop the activity in which they are involved if the work procedure or process is not clear or the activity appears unsafe. The policies also direct that performance reviews emphasize the requirements for safety and quality.

The safe completion of a quality job requires planning that takes into consideration aspects such as adequate work packages, appropriate level of instructions, evaluation of the impact of the task on other SSCs or processes, and an evaluation of the completed activity. Procedures governing these activities specify that trained and qualified personnel are required to participate in planning process. This includes craft and operations personnel supporting technical and administrative workers.

To ensure that safety and quality procedures are being followed and that the implemented procedures are adequate to facilitate achieving the expectations, assessments of work activities performed and the results of compliance with goals are conducted. Where practices are identified that improve safety and quality, those practices are incorporated into operations. Any required corrective actions identified are tracked to completion. Results of these assessments are provided to managers and workers.

As the Project moves through design, construction, and commissioning, the Contractor revises the goals and procedures to reflect the activities required for each phase.

17.6.8.1 Bechtel Group, Inc. Safety/Quality Culture

Bechtel Group, Inc., the parent company of BNI, holds safety as its first priority and considers it a key value that is fundamental to Bechtel's culture. The safety/quality culture of BNI Corporate is flowed down into the WTP Project.

With an emphasis on zero incidents, Bechtel considers that every accident, and therefore every injury, is preventable. Based on its extensive experience and best practices, Bechtel has developed interrelated field execution procedures, training and education programs, and assessment processes that form a comprehensive environmental, safety, health, and quality management system applicable to all projects. Bechtel management is improving the project safety and quality culture and demonstrating its commitment to effect change in the following key areas: management commitment, employee involvement, environmental safety and health training, worksite analysis, and hazard prevention and control.

17.6.8.2 Waste Treatment Plant Project Safety/Quality Culture

The WTP Project team maintains a strong safety and quality culture. The safety/quality culture includes characteristics and attitudes in organizations and individuals that establish safety/quality as an overriding priority. The WTP project approach for developing and maintaining a safety/quality culture includes establishing policies and programs for ensuring that (1) safety/quality awareness is a primary concern of Project Management, and (2) employees at all levels of the project are aware that they have an obligation for ensuring quality work is conducted safely. To achieve this performance the Contractor has established the following policy:

1) Outlining expectations and performance standards

2) Communicating those expectations
3) Implementing procedures that facilitate achieving expectations
4) Performing assessments to measure the compliance with and the appropriateness of BNI safety goals.

These policies are integrated into the design, construction, and commissioning of the plant in such a manner as to ensure protection of the health and safety of the public, personnel on site, and the environment. The fundamental principles of the project approach to implementing its safety/quality policy are summarized below. These principles support the WTP Contractor safety-first emphasis and are promoted by all elements of the organization in guiding day-to-day decision making and conduct.

- The AB establishes the bounds within which all radiological, nuclear, and process related work may be safely conducted. This principle is promulgated in every chapter of the PSAR. The project has demonstrated its commitment to this principle by identifying and documenting the safety basis of the WTP facilities and activities and by implementing physical and administrative controls appropriate to risk in order to protect the public, the workers, and the environment against identified radiological, nuclear, and process related hazards.
- The project is developing and implementing a formal and comprehensive Integrated Safety Management System. The ISMS systematically incorporates core functions and guiding principles into management and work practices at all project levels. Line management ownership and worker involvement in ISMS functions are key aspects of the ISMS.
- Management is responsible for providing leadership and support to project workers. This responsibility includes establishing goals and standards for work activities and providing the resources and materials necessary to allow workers to succeed. Management fulfills this responsibility through formal planning, coordinating, reporting, and budgeting processes, and through formal and informal interaction with workers.
- Work is planned and performed in accordance with established controls. This ensures repeatable, predictable operation that complies with regulatory requirements and implements safe work practices. The rigorous approach to procedural development, the performance-based approach to training, and the emphasis on following procedures when performing work, demonstrates the project's commitment to working in accordance with established controls.
- Workers are responsible for ensuring excellence and are individually responsible for their own safety and the safety of their coworkers and the facility. The concept of individual responsibility is exemplified by the fact that every worker has the authority to stop work if a procedural step is not clear or cannot be implemented safely. Stop-work authority is emphasized in the orientation training provided to all project workers. Worker empowerment is further emphasized in project implementing procedures, which contain guidance that encourages and requires employees to immediately notify their supervisors upon observing any event or condition adverse to safety, health, quality, safeguards and security, operations, or the environment. An employee concerns program provides another avenue for identifying problems to Project Management if an employee is dissatisfied with resolution through normal channels. Employees may also relay concerns directly to regulatory authorities if other alternatives do not result in correction of the problem.

Other policies that establish standards of conduct and job site work rules are communicated to employees.

The safe completion of a quality job requires planning that takes into consideration aspects such as adequate work packages, appropriate level of instructions, evaluation of the impact of the task on other SSCs or processes, and an evaluation of the completed activity. Procedures governing these activities

specify that trained and qualified personnel are required to participate in planning process. This includes craft and operations personnel supporting technical and administrative workers.

To ensure that safety and quality procedures are being followed and that the implemented procedures are adequate to facilitate achieving the expectations, assessments of work activities performed and the results of compliance with goals are conducted. Where practices are identified that improve safety and quality, those practices are incorporated into operations. Any required corrective actions identified are tracked to completion. Results of these assessments are provided to managers and workers.

Increasing individual awareness of the importance of safety, both on and off the job, is accomplished by several diverse methods. Meetings, posters, newsletters, newspapers, project-wide e-mails, etc. convey safety messages. Personnel are trained in safety skills, such as recognizing and reporting unsafe acts or conditions, and conducting work in a safe manner. The checks and balances of audit and review practices provide meaningful, high-quality self-appraisals. Systems and corrective measures are developed that promote preventive rather than responsive actions.

17.7 References

WTP Project Documents

24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*

24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*

24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*

24590-WTP-SRD-01-001-02, *Safety Requirements Document, Volume II*

Codes and Standards

10 CFR 820. *Procedural Rules for DOE Nuclear Activities*, Code of Federal Regulations, as amended.

10 CFR 830. *Nuclear Safety Management,* Code of Federal Regulations, as amended.

10 CFR 835. *Occupational Radiation Protection,* Code of Federal Regulations, as amended.

10 CFR 708. *Criteria and Procedures for Contractor Employee Protection Program*, Code of Federal Regulations, as amended.

ASME NQA-1-1989 Edition, *Quality Assurance Requirements for Nuclear Facility Applications*, American Society of Mechanical Engineers, Fairfield, New Jersey.

DOE Contract DE-AC27-01RV14136, US Department of Energy, Office of River Protection, Richland, Washington.

DOE O 232.1A. *Occurrence Reporting and Processing of Operations Information*

DOE O 414.1A. *Quality Assurance*, US Department of Energy, Washington DC.

DOE/RL-96-0003. DOE *Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*, Revision 2, February 2001, US Department of Energy, Office of River Protection, Richland, Washington.

DOE/RL-96-0004. *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor*, Revision 2, February 2001, US Department of Energy, Office of River Protection, Richland, Washington.

DOE/RW-0333P, *Quality Assurance Requirements and Description for the Civilian Radioactive Waste Management Program (QARD),* Revision 11, May 2001, US Department of Energy, Washington, D.C.

DOE-STD-1027-92. *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports,* US Department of Energy, Washington, DC.

Other References

Price-Anderson Amendment Act of 1988, 42 U.S.C. 2210, et. seq

Table 17-1 Key Activities Related to Safety – Design Phase

Activities Related to Safety	Functional Area
Planning:	
• Define safety policy and objectives	• project management
• Define critical safety interfaces for the various phases of the project	• project management
• Implement safety policy and objectives	• line managers, all functional areas
• Assign roles for safety-related activities	• project management
• Develop procedures to implement safety objectives and organizational plans	• radiological, nuclear and process safety
• Develop plans and procedures to address internal safety and oversight functions	• radiological, nuclear and process safety
• Develop plans and procedures to address quality assurance and quality control functions	• quality assurance
• Develop plans and procedures for identification and resolution of employee concerns	• human resources
• Develop performance measures	• project management
• Develop employee feedback program	• project management
• Develop configuration management program	• configuration management
• Develop and implement a regulatory commitment tracking system	• radiological, nuclear and process safety
• Develop the Radiation Protection Program	• radiation protection
Analysis/Regulatory:	
• Update Process Hazards Analysis (PHA)	• radiological, nuclear and process safety
• Update Hazard Analysis Report	• radiological, nuclear and process safety
• Identify requirements of the facility design for environmental regulatory compliance	• environmental protection
• Identify requirements of the facility design for Occupational, Safety, and Health (OSHA) Administration compliance	• radiological, nuclear and process safety
• Prepare applications for state and federal environmental permits	• environmental protection
• Update Standards Requirements Document	• radiological, nuclear and process safety
• Update Integrated Safety Management Plan	• radiological, nuclear and process safety
• Prepare limited work authorization request	• radiological, nuclear and process safety

Table 17-1 Key Activities Related to Safety – Design Phase

• Prepare Preliminary Safety Analysis Report	• radiological, nuclear and process safety
• Implement the Radiation Protection Program	• radiation protection
Design Functions:	
• Develop the quality assurance program plan for the design phase	• quality assurance
• Develop facility design that will achieve the defined work activity and satisfy commitments of the construction authorization package	• engineering
• Incorporate into the design measures that minimize the hazards associated with processing and storing radioactive liquid and solid waste, and fissionable materials	• engineering
• Incorporate into the design measures to facilitate performance of Technical Safety Requirement surveillances	• engineering
• Incorporate design features to ensure personnel exposure is as low as reasonably achievable	• engineering
• Identify design requirements for security	• engineering
• Incorporate design requirements for security	• engineering
• Implement consideration for deactivation and decommissioning into the facility design	• engineering
• Verify and validate design products against safety requirements	• engineering
• Implement configuration management control program	• configuration management
• Define acceptance criteria for the construction testing program	• engineering
• Perform systematic design reviews to determine readiness to authorize construction of Safety Design Class and Safety Design Significant systems, structures, and components	• engineering
• Develop and implement the Radiation Protection Program for design	• radiation protection

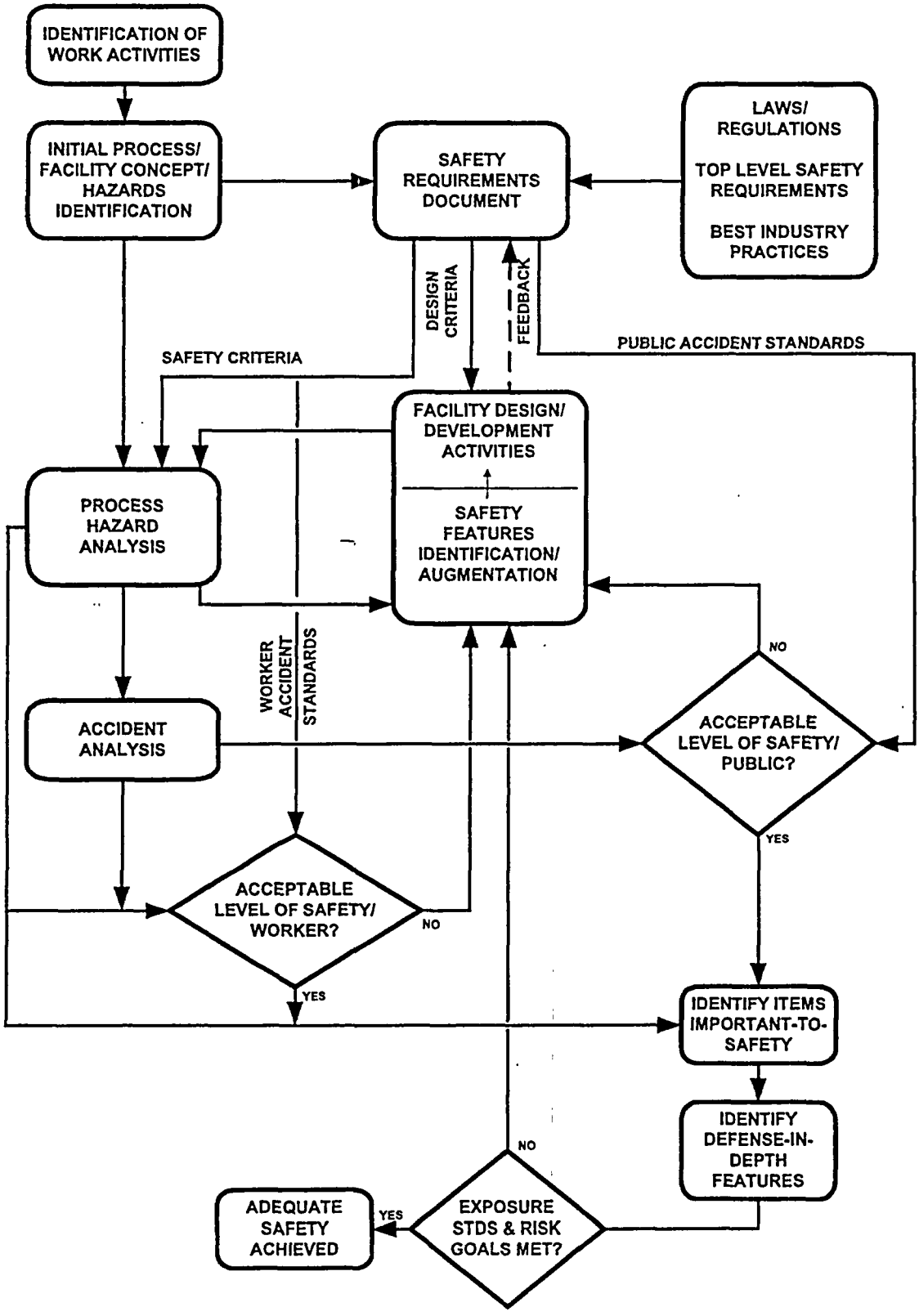
Table 17-2 Key Activities Related to Safety – Fabrication and Construction Phase

Activities Related to Safety	Functional Area
Construction:	
• Implement quality assurance program plan for the construction phase	• quality assurance
• Incorporate regulatory and quality commitments into procurement, fabrication, inspection, and testing	• engineering
• Incorporate regulatory requirements and quality commitments into facility construction, procurement, fabrication, inspection, and testing specification, training, and procedures	• engineering and construction management
• Implement procedures and training to enhance construction safety	• construction management
• Develop a program to ensure that the designer's configuration management program is implemented and that as-built information critical to safety is supplied to the facility operator	• configuration management
• Develop procedures for hazardous material handling, packaging, labeling, and shipping practices	• construction management
• Develop and implement the Radiation Protection Program for construction	• radiation protection
Inspection and Testing:	
• Conduct audits and inspections that verify compliance to requirements by the construction contractor, subcontractors, and Safety Design Class and Safety Design Significant suppliers of systems, structures, and components	• quality assurance
• Implement construction testing program to verify that SSCs meet acceptance testing requirements	• construction management
• Perform a systematic review(s) to determine readiness to authorize facility turnover in preparation for commissioning testing	• radiological, nuclear and process safety

Table 17-3 Key Activities Related to Safety – Commissioning Phase

Safety-related Activities	Functional Area
Planning:	
• Develop objective and scope for startup testing (scope to include initial and boundary conditions and simulated single failures, as appropriate)	• operations
• Identify the role of design and accident analyses organizations in the identification of the tests to be performed and acceptance of the test results	• operations
• Develop testing program that emphasizes testing with non-radioactive streams	• operations
• Identify tests to be performed and their acceptance criteria	• technical support
• Develop the quality assurance program plan for an operating facility	• quality assurance
• Develop operating staff training program	• operations
• Conduct staff training	• operations
• Develop program for procedure preparation, review, validation, approval, change, deviation, and internal control	• operations
• Define the maintenance program that includes preventive, predictive, and corrective maintenance practices and consider vendor-recommended maintenance activities	• maintenance
• Develop operating procedures	• operations
• Develop administrative procedures	• operations
• Develop maintenance procedures	• maintenance
• Develop procedures for hazardous material handling, packaging, labeling, and shipping practices	• operations
• Prepare Final Safety Analysis Report	• radiological, nuclear and process safety
• Implement a process safety management program	• radiological, nuclear and process safety
Commissioning:	
• Write test procedures	• commissioning
• Develop processes for evaluating and resolving unreviewed safety questions and for requesting discretionary enforcement relief from Technical Safety Requirements	• radiological, nuclear and process safety
• Perform testing and document results to acceptance criteria	• commissioning
• Collect safety component and process baseline data for future performance monitoring and maintenance planning	• configuration management
• Develop and implement the Radiation Protection Program for commissioning	• radiation protection

Figure 17-1 Project Integrated Safety Management Approach



Attachment 2

Proposed Changes Description and Safety Evaluation Summary for 2003 Annual Update of Chapter 17, "Management, Organization, and Institutional Safety Provisions"

Document Part	Title	Starting Page	No. of Pages
Attachment 2 to 24590-WTP-SE-ENS-03-479	Proposed Changes Description and Safety Evaluation Summary for 2003 Annual Update of Chapter 17, PSAR Volume I	1	5

# of pages (including cover sheet): 6

Summary of Proposed PSAR Vol. I Chapter 17Changes/Safety Evaluation

PSAR Volume 1 Chapter 17 Section	Proposed Revision	Justification/Safety Evaluation
17.1, Introduction (page "17-1")	In the second paragraph, first sentence correct spelling from "contractural" to "contractual"	Typographical correction; no impact on safety basis.
17.5.2, Organizational Responsibilities (page "17-9")	In the third paragraph, first sentence correct spelling from "contruction" to "construction"	Typographical correction; no impact on safety basis.
17.6.1, Project Integrated Safety Management Approach (page "17-17")	In the first paragraph, revise clause in second sentence from "is provided for the Project" to "are addressed by the Project" and add "and other AB documents" to the end of the last sentence in this paragraph.	These changes do not exceed the safety triad (i.e., changes are within laws and regulations & top-level principles, and are safe as they provide clarification in the first change that requirements are "addressed" not "provided for" and in the second change to note that ISMP related mapping of requirements to address "0003" are also found in other AB document besides the PSAR Vol. I (e.g., the RPP and QAM documents).
17.6.3, Configuration Management (page "17-22")	In the first paragraph, revise clause in second sentence from "Safety Design Class and Safety Design Significant" to "ITS".	This change, as provided to address the PSAR Question/Response (Q/R) LAW-PCAR-035, does not exceed the safety triad (i.e., change is within laws and regulations & top-level principles, and is safe as it represents the WTP Project approach to be used for configuration management). This clarification change confirms that application of configuration management is applied to all ITS categories, not just the SDC and SDS SSC items. NOTE: The following drivers were used to assess these proposed administrative control changes in this SE: <u>Laws and Regulations:</u> 10 CFR Part 830, Nuclear Safety Management requirements (via 830 Subpart B, Appendix A, F.2 and use of DOE-STD-3009, Chapter 17) to address configuration management and unreviewed safety question provisions topics in the preliminary documented safety analysis documentation provided by the PSAR.

Summary of Proposed PSAR Vol. I Chapter 17Changes/Safety Evaluation

PSAR Volume 1 Chapter 17, Section	Proposed Revision	Justification/Safety Evaluation
		Top-level Principles DOE/RL-96-0003, section 4.3.2 (content of PSAR) DOE/RL-96-0006, section 4.1.5 ("Configuration Management") and section 4.4.4 ("Unresolved Safety Questions") SRD SRD Configuration Management related safety criteria (i.e., Safety Criteria (SC) 4.0-1, 4.0-2, 4.0-3, 4.1-2, 7.0-3, and 7.2-3 for Configuration Management, as well as with related section in the SRD Appendices ad hoc standard (i.e., Appendix C.1) SRD USQ related safety criteria (i.e., SC under section 7.4 and SC 9.1-4)
17.6.3, Configuration Management (page "17-23")	Add the following text to the end of Section 17.6.3: The WTP Project Director provides direction for the Configuration Management Program and is the *RPP-WTP Configuration Management Plan* approval authority. The Manager of Engineering (MoE) develops the Configuration Management Program and oversees its implementation on the WTP Project. This responsibility is achieved with a configuration management organization including the MoE and line management. The Configuration Management Manager / Supervisor maintains the *RPP-WTP Configuration Management Plan,* maintains computer-based training for the configuration management process, and reviews procedures that implement the	These changes, as provided to address the DOE SER, ORP/OSR-2002-18, Section 3.17.2, Configuration Management (CM) item 1.(c) and the related PSAR Question/Response (Q/R) LAW-PCAR-005, do not exceed the safety triad, as the approved safety basis is not exceeded (i.e., changes are within laws and regulations & top-level principles, and are safe as the update provides specific information that describes the CM Program organizational responsibilities and staffing interfaces). Some revisions were made to the verbatim Q/R LAW-PCAR-005 wording to reflect current organizational titles and responsibilities related changes that have been made since the Q/R was developed. This new text is consistent with DOE requirements for CM and is consistent with the implementing Project CM document, 24590-WTP-PL-MG-01-002, Revision 1, "*RPP-WTP Configuration Management Plan*"

Summary of Proposed PSAR Vol. I Chapter 17Changes/Safety Evaluation

PSAR Volume 1 Chapter 17 Section	Proposed Revision	Justification/Safety Evaluation
	configuration management process for consistency with requirements. Engineering defines and approves changes to the Technical Baseline including review and approval of design changes and disposition of select nonconformances and deviations identified by other organizations. Line managers implement configuration management through procedures for their specific areas of responsibility to ensure that WTP Project structures, systems, and components and interfaces are designed, constructed, tested, commissioned, operated, and maintained in accordance with the Authorization Basis, applicable regulations, and policy for configuration management. Affected organizations review and concur with project procedures including those that implement the configuration management process. These implementing procedures define individual position responsibilities in a step-by-step process. Organizations that manage or interface with subcontractors or suppliers of items, activities, or services involving configured items flow down applicable requirements to ensure the configuration management process is properly implemented."	

Summary of Proposed PSAR Vol. I Chapter 17Changes/Safety Evaluation

PSAR Volume 1 Chapter 17 Section	Proposed Revision	Justification/Safety Evaluation
17.6.4, Document Control and Records Management (page "17-24")	In the third paragraph, first sentence correct spelling from "mangement" to "management"	Typographical correction; no impact on safety basis.
17.6.6, Unreviewed Safety Question Process (page "17-25")	Revise text in the first paragraph in this section to read: The unreviewed safety question (USQ) process, will be ~~effective following Final Safety Analysis Report approval and implementation for the operations phase (beginning with hot commissioning),~~ established during implementation of the approved FSAR which will precede start of the hot commissioning portion of the operations phase. The USQ process will allow project management to make changes to the facility, the procedures, and the AB documents; and to conduct tests and experiments at the facility without prior DOE approval in some cases.	This change, as provided to address the DOE SER, ORP/OSR-2002-18, Section 3.17.2, Configuration Management (CM) item 5.(a) and the related PSAR Question/Response (Q/R) LAW-PCAR-161, does not exceed the safety triad, as the approved safety basis is not exceeded (i.e., change is within laws and regulations & top-level principles, and is safe as the update clarifies that the USQ process will be effective with FSAR approval and the beginning of hot commissioning). Although a similar text revision had been made to this paragraph with incorporation of the DOE approved ABAR 24590-WTP-ABAR-ENS-02-001, the wording of the paragraph was proposed to be updated to come into agreement with the response confirmed with LAW-PCAR-161.

Summary of Proposed PSAR Vol. I Chapter 17Changes/Safety Evaluation

PSAR Volume I, Chapter 17 Section	Proposed Revision	Justification/Safety Evaluation
17.6.6, Unreviewed Safety Question Process (page "17-25")	Revise the last sentence of the second paragraph of this section to read: ~~However, a USQ evaluation is required if the condition or the implementation of the resolution for the condition is a change to the facility that potentially creates one of the conditions cited above~~ However, a USQ evaluation is required for a nonconforming or degraded condition if the resolution of the condition is to "use-as-is" or "repair". A USQ evaluation would also be required for an interim compensatory action that is proposed to deal with the degraded or non-conforming condition as part of the disposition process.	This change, as provided to address the DOE SER, ORP/OSR-2002-18, Section 3.17.2, Configuration Management (CM) item 5.(b) and the related PSAR Question/Response (Q/R) LAW-PCAR-160, does not exceed the safety triad, as the approved safety basis is not exceeded (i.e., change is within laws and regulations & top-level principles, and is safe as the update clarifies the factors considered by the Contractor in determining whether a USQ evaluation will be required when a nonconforming or degraded condition is encountered. This additional text provides a position on the application of the USQ process to respond to nonconforming or degraded conditions. Safety is supported by ensuring that the USQ process is applied for these conditions.
17.7, References (page "17-35")	Add, "Revision 11, May 2001," to the Reference section citation for DOE/RW-0333P, *Quality Assurance Requirements and Description for the Civilian Radioactive Waste Management Program (QARD.*	This change does not exceed the safety triad, as the approved safety basis is not exceeded. i.e., change is within laws and regulations & top-level principles, and is safe as this revision is a clarification change to note the specific version of the QARD cited in Modification A029 of the WTP Contract, DE-AC27-01RV14136, Section C, Standard 7, subsection (e) (3) (ii) (A).

Attachment 14

Authorization Basis Change Notice 24590-WTP- SE-ENS-03-509, Revision 0

Safety Evaluation For Design

ISSUED BY
RPP-WTP PDC
JK 8-6-03
INIT DATE

7/30/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	Rev. 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	Rev. 0
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: P&ID-PTF Cesium Nitric Acid Recovery Process System Evaporator Vessel	

Description of design change:

The Cesium Nitric Acid Recovery System (CNP) consists of a vacuum evaporation process that receives eluate from the Cesium Ion Exchange Process System (CXP), and produces a concentrated eluate product as a vitrification feed component as well as a purified dilute nitric acid solution for reuse. Engineering Specification, 24590-PTF-3PS-MEVV-T0002, Rev. 1, was updated to specify a forced circulation reboiler system design. This change was driven by Design Change Authorization (DCA), # 24590-PTF-DCA-PR-03-005, Rev. 0, for design implementation and validation.

The approved DCA, # 24590-PTF-DCA-PR-03-005, Rev. 0, describes the specification of a forced circulation evaporation system and an inter-condenser for the overhead condensing sub-system in the Cesium Nitric Acid Recovery (CNP) System. The vendor that is currently contracted to provide the design of the Feed Evaporation Process (FEP) system is also designated to design the CNP System. Under the guidance of configuration management (*RPP-WTP Configuration Management Plan*, 24590-WTP-PL-MG-01-002, Rev. 2), the design of CNP process configurations, components, and systems must duplicate, as much as possible, the design of comparable configurations, components, and systems in the FEP system. Consequently, a number of systems and components in the CNP system were modified to duplicate comparable systems and components in the FEP system. Other component and system modifications are specified in order to accommodate the designated vendor's process design. In addition, some of the modifications are secondary consequences to the specification of a forced circulation evaporation system. Other component and system modifications are the result of normal design and development modifications that evolved during the last 12 to 24 months. These component and system modifications are listed below.

1. A new Recirculation Pump, CNP-PMP-00001, was incorporated in the recirculation loop of the CNP Evaporator.
2. The Cesium Concentrate Lute Pot, CNP-VSL-00002 was deleted from the CNP System.
3. The RFD, CNP-RFD-00004 for sampling eluate, was previously located in the Cesium Concentrate Lute Pot, CNP-VSL-00002. This RFD was relocated to the recirculation piping, to be tapped directly for sampling purposes.
4. A Conditioned Steam Supply System was incorporated.
5. A Reboiler Shell Non-Condensable Vent System was added.
6. The Off-line Air Blanket System for the Reboiler Steam Supply System was deleted.
7. An eductor system was incorporated for the Reboiler Condensate Return System.
8. A Steam Condensate Supply System was incorporated to supply steam condensate to the Conditioned Steam Supply System and to the Reboiler Condensate Return System.
9. The transfer ejectors, CNP-EJCTR-00037, CNP-EJCTR-00013, CNP-EJCTR-00012, were moved to P&ID 24590-PTF-M6-CNP-00002.
10. The joggled wall boxes CNP-WBOX-00017/00036/00037 were replaced with shadow shielding.
11. 'Area classification break' C5/C3 was added, as indicated on the P&ID.
12. The classification designations QL-1 and SC-I were added to the P&ID, for the Evaporator Vessel (CNP-EVAP-00001), the Recirculation Pump (CNP-PMP-00001), and the Reboiler (CNP-HX-00001), including the recirculation piping.
13. The low-pressure steam bulge and the associated appurtenances were deleted, and replaced with a vendor skid mounted de-superheating station.

Operational Changes Associated with the Installation of a Forced Recirculation Reboiler System

With the forced circulation design, the anticipated flow rate of circulating fluid will be significantly greater compared with the flow rate previously anticipated for the natural circulation system. The fluid pressure in the recirculation loop will also be greater than that previously anticipated for the natural circulation system. Nevertheless, increases in fluid pressure can be minimized by proper design of the reboiler and the recirculation piping. The net evaporation rate and throughput of the evaporator system is not expected to change.

Safety Evaluation For Design

7/30/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	Rev. 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	Rev. 0

Reason for design change:

A Request For Quotation (RFQ) was issued for the evaporation process that included specification of a natural circulation, or thermo-siphon, reboiler system (24590-QL-MRA-MEVV-00002-01, Rev. 0). Results of the RFQ evaluation process prompted reconsideration of the natural circulation reboiler specification in favor of a forced circulation reboiler specification, as a preferred design. The reasons for the design changes are described below:

1. Recirculation Pump Installation.

The forced circulation evaporator system, having a recirculation pump, can be designed to accommodate inherent system pressure drop. This assures adequate fluid circulation and stable performance.

2. Elimination of Cesium Concentrate Lute Pot, CNP-VSL-00002.

Elimination of the Cesium Concentrate Lute Pot (CNP-VSL-00002) is a direct consequence of the specification of a forced circulation evaporation system. A large portion of the forced circulation evaporation system piping will be 16-inch diameter, providing adequate surge volume for solution transfer and sampling. The current design specifies that transfer and sampling of eluate be accomplished directly from the recirculation piping.

3. Satellite Reverse Flow Diverter (RFD) Sampling System.

The elimination of the Cesium Concentrate Lute Pot (CNP-VSL-00002) required that the RFD sampling system be relocated. The modified design specifies that the RFD sub-systems extract a sample directly from the recirculation piping.

4. Conditioned Steam Supply System.

The designated vendor has specified the Conditioned Steam Supply System. It will provide steam at the optimum pressure, temperature, and quality for the evaporator reboiler operation.

5. Reboiler Shell Non-Condensable Vent System.

To allow the purging of non-condensable gases, such as air, which may accumulate in the Reboiler Shell, the designated vendor has specified that a vent system be provided. The vent system is manually operated and exits at the suction line of the second stage ejector in the overhead condenser system. Under configuration management directions, the Non-Condensable Vent System design for the CNP Reboiler Shell is identical to the corresponding design for comparable application in the FEP System.

6. Elimination of the Off-line Air Blanket System for the Reboiler Steam Supply System.

The Air Blanket System is designed to maintain a higher differential pressure on the shell side of the reboiler when steam is not being supplied to the reboiler. The purpose of this system is to protect the condensate return system from contamination during off-line conditions. Based on a crosswalk evaluation with the FEP system, it was concluded during an ISM meeting that the condensate return system will be adequately protected with the currently specified radiation monitoring-diversion system.

7. Reboiler Condensate Return System.

The Reboiler Condensate Return System requires the specification of an eductor system to assure removal of the condensate. Under configuration management directions (*RPP-WTP Configuration Management Plan*, 24590-WTP-PL-MG-01-002, Rev. 2), the CNP eductor system design is identical to the FEP eductor system design for comparable application.

8. Steam Condensate Supply System.

The Conditioned Steam Supply System and the Reboiler Condensate Return System each requires a steam condensate supply for operation. Under configuration management directions (*RPP-WTP Configuration Management Plan*, 24590-WTP-PL-MG-01-002, Rev. 2), the CNP Steam Condensate Supply System design is identical to the FEP Steam Condensate Supply System design, for comparable application.

9. The transfer ejectors, CNP-EJCTR-00037, CNP-EJCTR-00013, CNP-EJCTR-00012, were moved to P&ID 24590-PTF-M6-CNP-00002, without any change in the CNP System configuration.

10. The safety basis for this design change is given in the Safety Evaluation # 24590-WTP-SE-ENS-03-219.

Safety Evaluation For Design

7/30/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	**Rev. 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00008	**Rev. 0**

Reason for design change:

11. Contamination designations are required, and are based on system service conditions and anticipated equipment locations.

12. Quality and seismic designations are required on P&IDs, and are based on system safety, service conditions, and anticipated equipment locations.

13. See Item 8 above for the reasons associated with this deletion.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The design changes described above do not modify or delete any standard prescribed in the Safety Requirements Document, Volume II. These changes were implemented to enable a vendor to build the CNP Evaporator based on a design that meets all functional requirements.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The following design changes in the referenced P&ID involve alterations in the location of SSCs described in the PSAR: (i) The removal of the Cesium Concentrate Lute Pot (CNP-VSL-00002). This also involves relocation of the RFD (CNP-RFD-00004) from this vessel to a location between the Separator Vessel (CNP-EVAP-00001) and the recirculation pump (CNP-PMP-00001). This will be used for collection of samples, via the Auto-sampler, directly from the recirculation piping. (ii) The addition of the Recirculation Pump (CNP-PMP-00001) between the Evaporator Vessel (CNP-EVAP-00001) and the Reboiler (CNP-HX-00001). This design change will lead to an increase in the recirculation loop flow rate from around 100–150 gpm to around 3,500 gpm. A consequence of this will be changes in the size of the associated segment of the recirculation piping, from 2 inch diameter piping to 16 inch diameter piping (approximately). (iii) The addition of a third condenser, an Inter-Condenser (CNP-HX-00004), to the rectifier overhead condenser system. (iv) The deletion of the requirement for an Off-line Air Blanket for non-operating/condition of the Reboiler (CNP-HX-00001).		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: The following changes in design involve items being deleted or reclassified, as described in the PSAR: (i) The Cesium Concentrate Lute Pot (CNP-VSL-00002) will be deleted from the new design. This vessel was designated SDC as part of the generic requirements for Hot Cell equipment. Its removal does not affect the confinement ability of CNP System process		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	Rev. 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	Rev. 0

	piping. (ii) The Recirculation Pump (CNP-PMP-00001), a new item in the design, will be classified as QL-1 and SC-I, which is consistent with the current PSAR classification for the CNP System components. (iii) The remaining modifications to the design (such as the addition of an Inter-Condenser, larger diameter recirculation piping between the separator vessel and the reboiler, and the replaceable unit for the demister pad) do not add or delete SDC or SDS equipment/SSCs.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: The design changes described here will not impact the safety functions of radioactive liquid/slurry confinement, as described in Chapter 4 of the PSAR. No additional or revised SDC or SDS controls are needed to prevent or mitigate the effects of potential accidents involving the revised CNP System design.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☒	☐
	Basis: The design changes described here do create a new hazard and affect the accidents analyzed in the PSAR. The new hazard and accident scenario of potential concern involves a spray leak that may develop as a result of increased pressure in the recirculation loop piping. However, accidents of this type (spray leaks in pressurized piping and other equipment) that are analyzed in the PSAR bound similar potential CNP System accidents (with ample safety margin). The following discussion about three major design changes is pertinent in the context of safety. (i) The change from a natural circulation design concept to a forced circulation configuration (with the addition of a recirculation pump) will involve increased pressures (~ 30 psia) and flow rates (~ 3,500 gpm) inside the recirculation piping. The higher process fluid pressure increases the potential for a spray leak accident and attendant consequences, as a result of the failure of a seal inside the recirculation pump. A similar situation may arise due to another failure mechanism that leads to a pinhole or larger leak in the pump or the piping. Spray leak events for the PTF systems are documented in section 3.4.1.4 of the PSAR (#24590-WTP-PSAR-ESH-01-002-02, Rev 0a). The source term calculation assumes a sharp-edged orifice leak, a line pressure differential of 200 psi, and a maximum release time of 2 hours. This limiting accident scenario analyzed in the PSAR bounds the pressures (and hence the release rates) associated with the forced circulation configuration for the CNP Evaporator. The only other significant factor in the estimation of dose to the worker or the public involves the radioactivity levels in the CNP System versus those analyzed in the PSAR. The PSAR considered unit dose levels (in the HLP01and HLP09 streams) that were at least a factor of 5 higher than those encountered in the CNP System (CNP12 stream). (See Calc. No. 24590-WTP-Z0CW14T-00013, Rev A.) (ii) The redesigned recirculation loop piping between the separator vessel and the reboiler will lead to a larger volumetric inventory of radioactive materials in this segment of the CNP System, and hence a greater hazard. This increase in radioactive inventory will not have any impact on the new potential accident scenario described above (preceding item (i)). (iii) During normal operation, the shell side (clean side) pressure of the Reboiler, CNP-HX-00001, is less than that of the tube side (radioactive side) pressure. Also, the air blanket system designed to maintain positive shell side (clean side) pressure during off-line conditions was eliminated. Both these specifications are based on an ISM crosswalk evaluation with the FEP system, which concluded that the condensate return system will be adequately protected with the currently specified radiation monitoring-diversion system.		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	Rev. 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	Rev. 0

6.	Does the change affect criticality safety?	☐	☒
	Basis: The design changes considered here will not impact criticality safety adversely. There are no changes in criticality safety considerations between the natural circulation and forced circulation designs for the CNP System. And, for either design, criticality safety considerations will not arise so long as less than 0.5 kilograms of Pu are held in the Ion Exchange (CXP) System. (See "WTP Criticality Safety Evaluation Report", # 24590-WTP-RPT-NS-01-001, Rev 3.) This requirement is not considered to be a limitation in the operation of the CNP System, and is expected to be satisfied with margin to spare.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: The design changes will not affect adversely exposure to radiation doses. The change from joggled wall boxes (CNP-WBOX-00017/-00036/-00037) to shadow shielding will not involve exposures to greater radiation levels (see Item 10 under the 'Description of design change'). The safety issues involved in joggled wall & floor boxes versus shadow shielding are addressed in the approved Safety Evaluation, # 24590-WTP-SE-ENS-03-219. The impact of a pressurized spray release is significantly lower than that for the bounding accident investigated for the PT facility in the PSAR. And, this is expected to be the worst case scenario with regard to potential hazards and accidents that may arise as a result of switching over from a natural circulation concept to a forced circulation CNP design. An ALARA Design Review was performed for this design change, and it is contained in the document/report # 24590-PTF-ADR-M-03-011, Rev 0. Considerations related to the releases of radioactivity to the environment are also discussed in answers to Questions 4 and 5 above. As a result of the increased pipe size in part of the recirculation loop, the volume of the eluate inventory is expected to be larger in the new design. Hence, the potential radioactive release volume is also expected to be larger. The ALARA basis for this design change is contained in the ADR, # 24590-PTF-ADR-M-02-04.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: No other Authorization Basis (AB) documents are affected by the design changes considered in this Safety Evaluation. The only AB document affected by these design changes is the PSAR, "Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information", # 24590-WTP-PSAR-ESH-01-002-02, Rev 0a.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: An ISM Meeting was held for the CNP System design changes considered in this Safety Evaluation. The "Meeting Minutes" are contained in "ISM Control Strategy Development for Proposed CNP Forced Circulation Evaporator", CCN: 059080. The major "Outcomes" of the ISM Meeting are summarized below: (i) No hazards were identified that require development of unique control strategies. (That is, existing set of control strategies for the CNP System was determined to be sufficient for hazards related to forced circulation.) (ii) No actions or assumptions were identified that require closure to validate the conclusions of this meeting. (iii) The key impact to the change is that the inventory available for release is greater due to increased piping sizes in the recirculation loop. However, the unit dose levels are significantly lower than the levels for the DBEs evaluated in the PSAR. Hence, the		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	**Rev.** 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	**Rev.** 0

	consequences of releases of radioactivity from an accident are bounded, and the control strategies are still valid and appropriate. In connection with item (iii) above, it is clear from answers to Questions 4 and 5 above that the accidents analyzed in the PSAR bound all potential accident scenarios that may arise as a result of switching over to the forced circulation design concept for the CNP System.		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Bihari Vaishnavi *Print/Type Name*	B Vaishnavi *Signature*	7/29/03 *Date*
Design Document Originator/ Supervisor:	Barry Place *Print/Type Name*	 *Signature*	7/29/03 *Date*

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead:	N/A *Print/Type Name*	 *Signature*	 *Date*

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	**Rev. 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00008	**Rev. 0**

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The changes described here do not create a new DBE. The design changes do involve increased pressures in the recirculation line (with the addition of the pump) and higher flow rates. This operational scenario of higher process fluid pressure increases significantly the potential for a spray leak accident and subsequent consequences. However, the pressure differential assumed in the limiting spray leak accidents analyzed in the PSAR bound the pressure differentials (and hence the release rates) associated with the CNP forced circulation design. The unit dose levels analyzed in the PSAR are also almost an order of magnitude higher than those expected in the CNP System. The PSAR accident scenarios analyzed for pressurized spray leaks in the PTF, thus, bound the worst case potential accident scenarios introduced by switching over from the natural circulation concept to a forced circulation configuration for the CNP System design.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: The design changes for the CNP System described here will not lead to more than a minimal increase in the frequency of the DBE accidents analyzed in the PSAR. The unmitigated frequency for a potential, pressurized spray leak in the CNP Evaporator should be about the same (~ 0.01, or lower; hence, in the "unlikely" frequency range) as that estimated for the bounding DBE spray leak for the PTF investigated in the PSAR. Both the operating pressure differential and the unit dose level expected in the potential spray leak in the forced circulation CNP System design will be significantly lower than those used in the bounding PTF spray leak DBE analyzed in the PSAR. Hence, the radiological consequences for the potential spray leak accident scenario in the forced circulation CNP System design are bounded by those for the limiting spray leaks investigated in the PSAR for the PTF.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The design change will not lead to more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its safety function. The recirculation pump and the higher pressures in the recirculation line in the new design do contribute to increased risk for a pressurized spray leak in comparison to similar risks in the natural circulation configuration. However, the consequences of such a potential DBE scenario in the CNP Evaporator System are bounded by similar limiting DBEs evaluated for the PTF in the PSAR.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: The design changes described here do not lead to any non-compliance with the applicable laws, regulations, or standards, as explained below. 10CFR820 - *Procedural Rules for DOE Nuclear Activities*, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The design changes described here are		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	Rev. 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	Rev. 0

	not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10CFR830 - *Nuclear Safety Management*, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of nuclear safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). The design changes described here are consistent with the requirements of 10CFR830 for facility safety classified SSCs. 10CFR835 - *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The design changes described here will not change the radiation protection program or challenge any requirements of 10CFR835. RL/REG-96-0006 - *Top-Level Radiological, Nuclear and Process Safety Standards and Principles*, Section 4.2.1, provides high-level statements that express DOE's expectations for the performance of nuclear safety-related activities associated with the WTP design. The proposed changes were developed in accordance with procedures that implement the top-level standards and principles. These changes are consistent with these procedures and do not change them; therefore, the design changes are in compliance with the top-level safety standards. The consequences of an accident due to a pressurized spray leak in the CNP System forced circulation design are well bounded by those from DBEs evaluated in the PSAR for similar spray leaks in other PTF systems. Hence, the design changes reported here will not lead to any non-compliance with applicable laws and regulations (i.e., 10CFR820, 830, and 835) or non-conformance to top-level safety standards (i.e., DOE/RL-96-0006).		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The design changes do not fail to provide adequate safety. The increased risk to safety from a pressurized spray leak in the forced circulation design is relatively small, as the frequency for such risk is expected to be in the "unlikely" category. The consequences of an accident due to a pressurized spray leak in the CNP System circulation line or pump are significantly lower than those evaluated in the PSAR for similar accidents in other PTF systems.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process Safety, requires an integrated-standard based safety management program for the WTP, submittal of safety documents and construction authorization requests, and meetings. This Contract Standard also provides document preparation guidance. The design changes reported here were developed in accordance with procedures that implement these contract requirements. The changes for the CNP System that are described here evolved as a result of a change over from a natural circulation concept to a forced circulation configuration. These changes are consistent with the procedures described in the contract documents, and do not change these procedures. Hence, the design changes are in compliance with the contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The conditions of acceptance in Sections 4.3.1 (PT Facility Description) and 4.3.2 (PT facility Hazard and Accident Analysis) of the Construction Authorization Agreement		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	Rev. 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	Rev. 0

(CCN 054383) are not impacted by the proposed design changes. These changes to the CNP System were implemented to replace natural convection with forced convection as a fundamental heat transfer mode in the design of this system, and are described in the first part of this document.

The following DOE Questions/Responses are related to the CNP System:

PT-PSAR-003, dealing with credited safety functions of the Cesium Nitric Acid Recovery System;

PT-PSAR-008, dealing with the design of ITS SSCs (such as the Reboiler, the Separator Vessel, and the Heat Exchanger Radiation Monitors and Interlocks) for single failure protection;

PT-PSAR-046, dealing with control strategies selected for the Rectifier (Distillation Column) and Recovered Nitric Acid Vessel in the CNP Evaporator System;

PT-PSAR-067, dealing with the Nitric Acid Concentration Monitor and Interlock in the Cesium Nitric Acid Recovery Process System;

PT-PSAR-161, dealing with the contamination of condensate lines by overfill of the Evaporator Separator Vessel;

PT-PSAR-174, dealing with initiating event frequency for over-concentration in the CNP Evaporator System;

PT-PSAR-270, dealing with the radiation and contamination level classification of the room which houses the CNP System Rectifier (Distillation Column) and supports maintenance inside the Evaporator/Separator Vessel (contained inside a black cell);

PT-PSAR-293, which deals with hydrogen hazard in the CNP Evaporator/Separator Vessel.

The Responses to any of the DOE Questions outlined above are not at all affected by the design changes described and evaluated in this document.

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	JDH	7-29-03

Safety Evaluation For Design

JK 7/30/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	**Rev.** 0
Design Document Evaluated: 24590-PTF-M6-CNP-00008	**Rev.** 0

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	0a	2.4.13.9; 2.4.16.2; 2.4.18; 2.5.13; 3.4.13; 4.4.5.2; 4.4.12.2; Appendix 3A: Table 3A-4. page 3A-6; Table 3A-21, page 3A-45; Figure 2A-2, page 2A-6; Figure 2A-10, page 2A-14; Appendix A: pages A-3/-4/-5/-6/-7, D-3.

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Bihari Vaishnavi	B Vaishnavi	7/29/03
☒	AB Document Custodian	Taber Hersum	Taber Hersum	7/29/03
☐	Quality Assurance			
☒	Engineering	Steve Grabowski		7/29/03
☒	Affected Area Project Manager	Bob Lawrence		7/30/03
☐	Operations			
☐	Construction			

Safety Evaluation For Design

DR 7/30/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-509	**Rev. 0**
Design Document Evaluated: 24590-PTF-M6-CNP-00008	**Rev. 0**

Other Affected Organizations	Print / Type Name	Signature	Date
N/A			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 7/31/03 (*Date*)

Attachment 15

Authorization Basis Change Notice 24590-WTP- SE-ENS-03-528, Revision 0

Safety Evaluation For Design

Safety Evaluation No.: 24590-WTP-SE-ENS-03-528	Rev. # 0
Design Document Evaluated: 24590-PTF-M6N-PWD-00068	Rev. # NA
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: Incorporate DCA (24590-PTF-DCA-M-03-021, Rev. 0) for the PWD System	

Description of design change:

1. Added a sealpot (PWD-SP-00001) to the drawing.
2. Rerouted PWD vessel (PWD-VSL-00043) overflow pipeline from the PWD sump (PWD-SUMP-00040) to the PWD sealpot (PWD-SP-00001).
3. Routed the PWD sealpot overflow pipeline to the PWD sump (PWD-SUMP-00040).
4. Added level instrumentation (LI-1202/LT-1201) to the PWD sealpot (PWD-SP-00001).
5. Added pipelines PWD-ZG-01421-S11Y-001/2 and PWD-ZG-01435-S11Y-001/2 for the PWD sealpot level instrumentation.

Reason for design change:

Approval of DCA (24590-PTF-DCA-M-03-021, Rev. 0) to reconfigure PWD-SUMP-00040 from a wet sump to a dry sump involved the addition of a seal pot into which vessel PWD-VSL-00043 would overflow, rather than directly into the wet portion of PWD-SUMP-00040. The changes listed above are as a direct result of implementing this change.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The design changes are made consistent with standards prescribed in the SRD.The changes do not modify or delete a standard prescribed in the SRD.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The overflow from vessels to the ultimate overflow vessel is described in chapter 2 as a design feature of the PTF. The description for how vessel PWD-VSL-00043 would overflow to sump PWD-SUMP-00040 is found in section 2.5.15.3. Adding this new detail of how vessel PWD-VSL-00043 overflows first to a seal pot vessel before overflowing to the sump would not alter the location, function, or reliability of an SSC as described in the PSAR. The change involves the relocation of the sealing function-provided by the previously wetted portion of PWD-SUMP-00040-from the sump to a new sealpot vessel. The wetted sump function is mentioned in Chapter 3 of the PSAR. This change to the way that vessel PWD-VSL-00043 would overflow alters the function of sump PWD-VSL-00040in the vessel overflow scenario described in the PSAR.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐
	Basis: The new proposed seal pot vessel PWD-SP-0001 is to be classified the same as the overflow piping. The overflow piping is classified as SDS in PSAR section 4.4.6.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒

Safety Evaluation No.: 24590-WTP-SE-ENS-03-528	Rev. # 0
Design Document Evaluated: 24590-PTF-M6N-PWD-00068	Rev. # NA

	Basis: There are no safety function descriptions related to the wet sump function as providing a seal between the C3 and C5 vessels. The safety function of the overflow piping is provided in section 4.4.6 as SDS for confinement of material. The proposed seal pot would be designed in line with the overflow piping classification. Other than adding the seal pot in the description of overflow piping components (along with other piping specialty items; i.e., elbows and tees)to Table 4A-2 no other impacts to the safety function descriptions in chapter 4 of the PSAR are created.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: The accident analysis for the vessel overflow event is unchanged by the addition of a seal pot in the overflow line to the sump. The vessel overflow event is described in Section 3.4.1.3.3 of chapter 3 where there is mention of the sump being wetted. However, the accident analysis ignores the liquid in the sump as preventing aerosol generation. Therefore, the fact that the sump is dry instead of wet as when the DBE scenario was formulated does not affect the hazards and accident analysis contained in the PSAR.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: No criticality concerns with the PWD system were identified in the PSAR. The impact on criticality safety from the proposed changes is unchanged from those described in Chapter 6 of the PSAR.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: The newly proposed sealpot is located at elevation (–)45'-0" inside the C5/R5 area. The seal pot does not contain radioactively hazardous materials during normal operation. The proposed change would not invalidate the conclusions of the ADR for the PWD system.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: Other AB documents were reviewed for the changes noted above. The changes have no impact on other AB documents except for the PT-PSAR.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒
	Basis: The change simply moves the sealing function provided by the wet sump from the sump to a new seal pot. This level of change does not warrant an ISM meeting.		

Further safety review required? ☐ Yes ☒ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Maurice J Higuera *Print/Type Name*	Maurice J Higuera *Signature*	8/6/03 *Date*
Design Document Originator/ Supervisor:	Naila Crawford *Print/Type Name*	Naila Crawford *Signature*	8/6/03 *Date*

Safety Evaluation For Design

Safety Evaluation No.: 24590-WTP-SE-ENS-03-528	**Rev. # 0**
Design Document Evaluated: 24590-PTF-M6N-PWD-00068	**Rev. # NA**

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead: N/A _____ _____ _____

Print/Type Name *Signature* *Date*

Safety Evaluation No.: 24590-WTP-SE-ENS-03-528	Rev. # 0
Design Document Evaluated: 24590-PTF-M6N-PWD-00068	Rev. # NA

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The vessel overflow event is described in Section 3.4.1.3.3 of chapter 3 where there is mention of the sump being wetted. However, the accident analysis ignores the liquid in the sump as preventing aerosol generation. Therefore, the fact that the sump is dry instead of wet as when the DBE scenario was formulated does not affect the hazards and accident analysis contained in the PSAR. The sealpot volume of seal water contains no radioactive material.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: The analyzed DBE in the PSAR is the vessel overflow event described in Section 3.4.1.3.3 of chapter 3. The results of the DBE are based on the aerosol generation created from the free falling of material into the sump as it is filled. The sump was assumed to be dry, i.e., no credit for the sump being partially filled. This event excluded the presence of wetted sump as a mitigator to the event consequences. New event consequences would be in line with previously calculated results.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: The important to safety function stated in the PSAR is the confinement of material provided by the SDS classified overflow lines. This safety function is not decreased by the introduction of a sealpot in the overflow line before the sump from vessel PWD-VSL-00043. The seal pot vessel will be constructed and installed to project standards for SDS components.		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10CFR820 - *Procedural Rules for DOE Nuclear Activities*, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The design changes described here are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10CFR830 - *Nuclear Safety Management*, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This includes certain aspects of nuclear safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility safety classified SSCs, and the quality assurance program (QAP). The design changes described here are consistent with the requirements of 10CFR830 for facility safety classified SSCs. 10CFR835 - *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The design changes described here will not change the radiation protection program or challenge any requirements of 10CFR835. RL/REG-96-0006 - *Top-Level Radiological, Nuclear and Process Safety Standards and Principles*, Section 4.2.1, provides high-level statements that express DOE's expectations		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-528	Rev. # 0
Design Document Evaluated: 24590-PTF-M6N-PWD-00068	Rev. # NA

	for the performance of nuclear safety-related activities associated with the WTP design. The proposed changes were developed in accordance with procedures that implement the top-level standards and principles. These changes are consistent with these procedures and do not change them; therefore, the design changes are in compliance with the top-level safety standards. The consequences of an accident due to a overflow from the vessel into the sump are well bounded by the DBE evaluated in the PSAR. Hence, the design changes reported here will not lead to any non-compliance with applicable laws and regulations (i.e., 10CFR820, 830, and 835) or non-conformance to top-level safety standards (i.e., DOE/RL-96-0006).		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The design changes do not fail to provide adequate safety. The event consequences from an overflow scenario are bounded by the analyzed event in the PSAR.		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: Contract Standard 7(e)(2), Radiological, Nuclear, and Process Safety, requires an integrated-standard based safety management program for the WTP, submittal of safety documents and construction authorization requests, and meetings. This Contract Standard also provides document preparation guidance. The design changes reported here were developed in accordance with procedures that implement these contract requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The conditions of acceptance in Sections 4.3.1 (PT Facility Description) and 4.3.2 (PT facility Hazard and Accident Analysis) of the Construction Authorization Agreement (CCN 054383) are not impacted by the proposed design changes.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:	[signature]	8.8.23

Safety Evaluation No.: 24590-WTP-SE-ENS-03-528	**Rev. #** 0
Design Document Evaluated: 24590-PTF-M6N-PWD-00068	**Rev. #** NA

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section tgh 8/7/03
Preliminary Safety Analysis Report to Support Construction Authorization; PT Facility Specific Information	24590-WTP-PSAR-ESH-01-002-02	0a	~~2.4.18~~, 2.5.15, ~~2.5.15.3~~; 3.4.1.2.3.3; 3.4.1.3.3, 4.4.6 ~~Table 4A-2~~, ~~5.5.8~~. See attachment 1

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Maurice J Higuera	Maurice J. Higuera	8/6/03
☒	AB Document Custodian	Taber Hersum	Taber Hersum	8/8/03
☐	Quality Assurance			
☒	Engineering	Bob Voke	Bob Voke	8/6/03
☒	Affected Area Project Manager	Robert E Lawrence	R E Lawrence	8/6/03
☒	Operations	Greg Jager	Greg J. Jager	8/7/03
☐	Construction			

Other Affected Organizations	Print / Type Name	Signature	Date
N/A if None			

BNI-Approved AB Change Approved:

E&NS Manager: Fred Berarck (*Print/Type Name*) _____ (*Signature*) 8/11/03 (*Date*)

Attachment 1. PSAR Sections Impacted by Addition of Seal Pot in Overflow Drain from Vessel PWD-VSL-00043 to Pit Sump

Attachment 2. DCN 24590-PTF-M6N-PWD-00068 for Addition of Seal Pot in Overflow Drain from Vessel PWD-VSL-00043 to Pit Sump

Attachment 1

PSAR Sections Impacted by Addition of Sealpot in Overflow Drain from Vessel PWD-VSL-00043 to Pit Sump

Sections of 24590-WTP-PSAR-ESH-01-002-02 Rev. 0 Affected by the Addition of Sealpot in Overflow Line from PWD-VSL-00043 to Pit Sump

		Rev. 0, August 8, 2003
Preliminary Safety Analysis		
Report to Support	Sections Affected	Page
Construction Authorization	by Changes	
General Information, Vol I		
24590-WTP-PSAR-ESH-01-002-01	none	
Rev. 0d, 07/08/2003		
PT Facility Specific Information		
24590-WTP-PSAR-ESH-01-002-02, Rev. 0	2.5.15 (three additions)	2-56
	Figure 2A-55	2A-59
	3.4.1.2.3.3	3.4.1.2-20
	3.4.1.3.3	3.4.1.3-4
	3.4.1.3.8	3.4.1.3-9
	3.4.1.9.7	3.4.1.9-4
	4.4.6	4-43
	Appendix A SIPD	
	CSD-PPWD/N0031	A-78
	CSD-PPWD/N0116	A-101

Attachment 2

DCN 24590-PTF-M6N-PWD-00068
for
Addition of Sealpot in Overflow Drain
from Vessel PWD-VSL-00043
to Pit Sump

Drawing Change Notice

DCN NO. 24590-PTF-M6N-PWD-00068

JOB NO.	DRAWING NUMBER	REV NO	TITLE OF DRAWING
24590	24590-PTF-M6-PWD-00002	0	P&ID - PTF PLANT WASH & DISPOSAL SYSTEM EFFLUENT COLLECTION PWD-VSL-00033/00043/00044 (Q)

JUSTIFICATION FOR CHANGE	TREND CODE-NUMBER
Incorporate DCA (24590-PTF-DCA-M-03-021, Rev. 0) for the PWD System	06

REQUIREMENTS REVIEW

Client Approval Required	☐ Yes	☒ No	Permit/License Change Required	☐ Yes	☒ No
Interface Resolution Required	☐ Yes	☒ No	AB Safety Screening Required	☒ Yes	☐ No

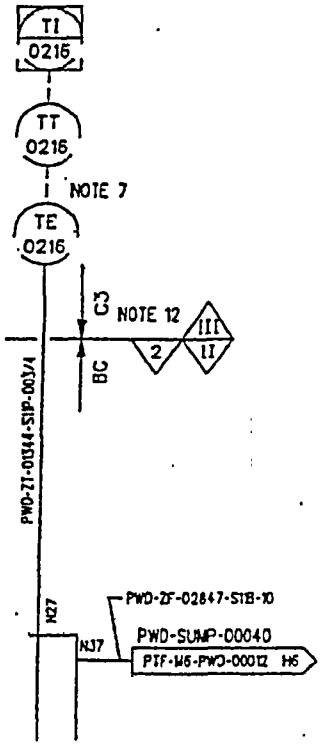
Address any "yes" answers in the description

DESCRIPTION OF CHANGE

An AB Safety Screening is required for primary design drawings per Engineering Drawings (24590-WTP-3DP-G04B-00046, Rev. 5), and P&ID 24590-PTF-M6-PWD-00002, Rev. 0 is a primary design drawing.

Per the directive of DCA (24590-PTF-DCA-M-03-021, Rev. 0) to reconfigure PWD sump (PWD-SUMP-00040) from a wet sump to a dry sump. Rerouted the PWD vessel (PWD-VSL-00043) overflow line (PWD-ZF-02847-S11B-10) from the PWD sump (PWD-SUMP-00040) to a sealpot (PWD-SP-00001). Routed the overflow line (PWD-ZF-09470-S11B-10) from the sealpot (PWD-SP-00001) to the PWD sump (PWD-SUMP-00040). Added level indication (LI-1201) and transmitter (LT-1201) for the PWD sealpot (PWD-SP-00001). Added pipelines: PWD-ZG-01421-S11Y-001/2 and PWD-ZG-01435-S11Y-001/2 for the level transmitter/indicator.

WAS



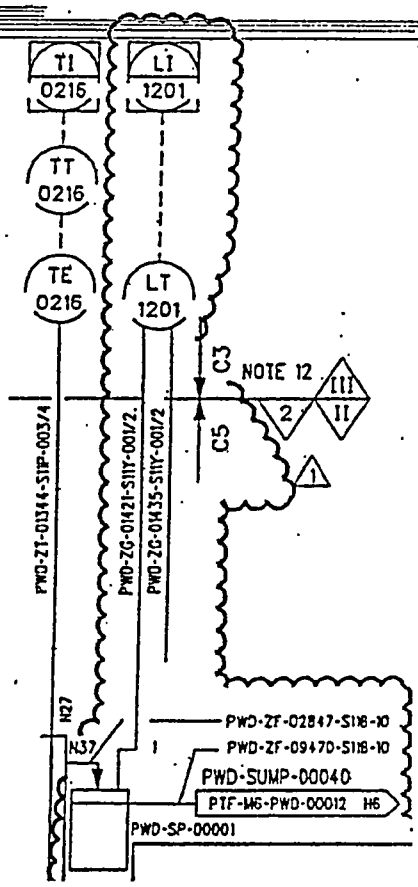
Drawing Change Notice

DCN NO.
24590-PTF-M6N-PWD-00068

JOB NO.	DRAWING NUMBER	REV NO	TITLE OF DRAWING
24590	24590-PTF-M6-PWD-00002	0	P&ID - PTF PLANT WASH & DISPOSAL SYSTEM EFFLUENT COLLECTION PWD-VSL-00033/00043/00044 (Q)

DESCRIPTION OF CHANGE

IS

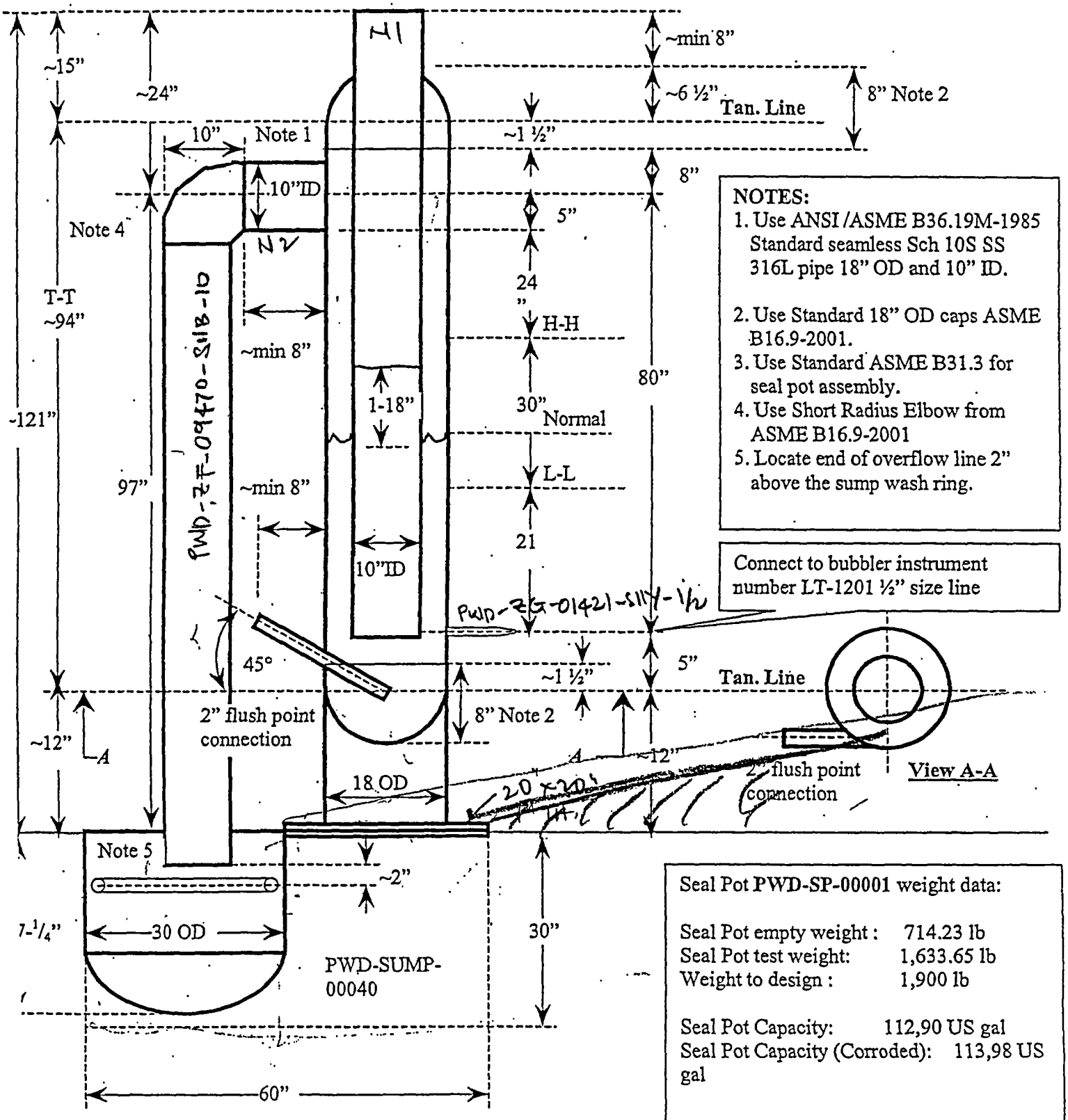


ORIGINATOR	CHECKED BY	REVIEWED BY

AREA PROJECT ENGINEERING MANAGER *OR* DISCIPLINE ENGINEERING MANAGER:	DATE

Preliminary Sketch for PWD-VSL-00043 overflow line seal pot **PWD-SP-00001** (SC-II / QL-2; 18" OD).

PWD-ER-02847-S11B-10



NOTES:

1. Use ANSI /ASME B36.19M-1985 Standard seamless Sch 10S SS 316L pipe 18" OD and 10" ID.
2. Use Standard 18" OD caps ASME B16.9-2001.
3. Use Standard ASME B31.3 for seal pot assembly.
4. Use Short Radius Elbow from ASME B16.9-2001
5. Locate end of overflow line 2" above the sump wash ring.

Connect to bubbler instrument number LT-1201 ½" size line

Seal Pot **PWD-SP-00001** weight data:

Seal Pot empty weight :	714.23 lb
Seal Pot test weight:	1,633.65 lb
Weight to design :	1,900 lb
Seal Pot Capacity:	112,90 US gal
Seal Pot Capacity (Corroded):	113,98 US gal

Attachment 16

Authorization Basis Change Notice 24590-WTP- SE-ENS-03-529, Revision 0

Safety Evaluation For Design

JK 8/8/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-529	Rev. # 0
Design Document Evaluated: 24590-HLW-M5-V17T-00005	Rev. # 3
Consists of Parts: ☒ 1 ☒ 2 ☒ 3 ☐ 4	
Title: Process Flow Diagram HLW Vitrification Pulse Jet Ventilation Treatment (System PJV)	

Description of design change:

This design change includes:

1. Adding a drain line to drain the pulse jet vent header to RLD-VSL-00002 (DCA-PR-02-018). This change is on hold pending approval of ABAR 24590-WTP-SE-ENS-03-473.
2. Relocating the pressure and temperature indicators from downstream of the primary booster fan to upstream of the HEPA filters.
3. Adding a hold to the stream tables pending issue of a committed material balance.
4. Changing the call-out for the process stream numbering scheme.

Also, the third fan is removed (DCA-PR-02-021) and the fan capacity of the two remaining fans is increased from 50% to 100%. This change was evaluated in 24590-WTP-SE-ENS-03-018, Rev 0.

Reason for design change:

Reasons for the design change are as follows:

1. A low point drain in the pulse jet vent header, PJV, was added to prevent condensation from accumulating in the piping and damaging the HEPA filters. This change is on Hold.
2. The re-location of the pressure and temperature sensors improves the ability to diagnose abnormal operating conditions in the primary offgas treatment units.
3. Explanation 3 above, is self sufficient.
4. The procedure for process stream numbering, originally in Note 4 of the reference drawing, is listed in the references.

Complete the following parts as appropriate:

Part 1 Safety Screening

Complete Part 1 for all design changes requiring this form. Refer to Appendix 2 of 24590-WTP-GPP-SREG-002 for guidance. If all Part 1 answers are 'No', or for a 'Yes' answer the design is safe and consistent with the AB, the design change does not require further safety review or an AB change. If this is the case, sign this form after Part 1 and submit to PDC. After each question briefly describe the basis for each answer..

		YES	NO
1.	Does the change modify or delete a standard prescribed in the *Safety Requirements Document Volume II* (SRD)?	☐	☒
	Basis: The re-location of the pressure and temperature sensors (2), does not change the standards that apply to this system. The hold on the material balance (3), and the change from a note to a reference (4), do not change any SRD requirements.		
2.	Does the change alter the location, function, or reliability of an SSC as described in the AB? *This question refers to SSCs described in the LCAR and PSAR, including text descriptions and tables in chapter 2 of the PSAR.*	☒	☐
	Basis: The drawing fails to show a humidity monitor which is listed in the PSAR. The function of monitoring humidity, as specified in the PSAR is not by a humidity specific monitor, per se. Temperature upstream and downstream of the HEPA preheater, as shown on the drawing, can be used to estimate the relative humidity. (2) Details of the pressure and temperature of instrumentation are not described in the PSAR. Items (3) and (4) are procedural matters and outside this evaluation requirement.		
3.	Is there a change in classification, new items being classified, or existing items deleted as described in the PSAR?	☒	☐

JL 8/8/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-529	Rev. # 0
Design Document Evaluated: 24590-HLW-M5-V17T-00005	Rev. # 3

	Basis: The re-location of the pressure and temperature sensor (2) from upstream of the fans to downstream of the fans does not change the classification. Items (4) and (5) are not subject to classification. The humidity monitor is not shown on the drawing, however the relative humidity can be determined from the change in temperature across the preheater.		
4.	Does the change affect the safety function descriptions in chapter 4 of the PSAR?	☐	☒
	Basis: PSAR description of the safety function: *The safety function of the pulse ventilation treatment system is to maintain airflow from the pulse jet mixers as part of solids mixing. The ductwork and fans provide a flow path for the fluidics equipment. The HEPA filters will not clog or block the flow path.* (2) Re-locating pressure and temperature instrumentation is not a change that affects the safety function. Items (3) and (4) are unrelated to the safety function. High humidity can adversely affect the HEPA filters. The means of measuring this parameter has changed from a humidity monitor to temperature sensors. Instrumentation is retained for detecting situations that could affect the safety function of maintaining the airflow through the system.		
5.	Does the change create a new hazard or affect the hazard or accident analysis contained in the PSAR?	☐	☒
	Basis: (2) System monitoring is improved by placing the pressure and temperature sensor from upstream of fans to downstream of the HEPA filters. Troubleshooting system upsets are improved by the re-location of the pressure and temperature sensors. This change is not a hazard. Neither the hold (3) nor the change from a "Note" to a "Reference" (4) constitute a hazard.		
6.	Does the change affect criticality safety?	☐	☒
	Basis: The Criticality Evaluation Report, 24590-WTP-RPT-NS-01-001, Rev 2, is unaffected by: • The re-location of the pressure and temperature sensors (2). • The "Hold" pending a committed material balance (3). • The "Note" that is now a reference (4). Moderation, fissile concentration, geometry, nuclear poisons, spacing, and reflection are unchanged.		
7.	Does the change have the ability to affect exposures to radiation (doses), contamination levels, or releases of radioactivity to the environment? If so, has an ADR been completed?	☐	☒
	Basis: (2) The subject parameters, exposures to radiation, contamination levels, and releases of radioactivity to the environment are unaffected by the relocation of the pressure and temperature sensors. The location of the pressure and temperature elements with respect to the HEPA filters has no affect on the HEPA filter or offgas treatment performance. The contamination level and the exposure level are unchanged. The pressure and temperature sensors are irrelevant with regard to radioactivity releases to the environment. Items (3) and (4) are of a procedural nature, and in this case have no bearing on doses, contamination, or releases of radioactivity. The ADR is complete.		
8.	Are any other Authorization Basis documents affected by this change?	☐	☒
	Basis: The OSR PCAR/CAR Implementation Database was reviewed for additional requirements pertaining to the PJV treatment system and this drawing. None of the changes, items (1), (2), (3) or (4) are addressed.		
9.	As a result of this design change, is an ISM meeting required?	☐	☒

Safety Evaluation For Design

MB 8/4/03 JR 8/8/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-529		**Rev. #** 0
Design Document Evaluated: 24590-HLW-M5-V17T-00005		**Rev. #** 3

	Basis: The relocation of the pressure and temperature sensor as demonstrated in question 7 (above) is not a safety concern requiring ISM consideration. Items (3) and (4) are not subject to an ISM meeting. The use of temperature as an indirect measurement of humidity is typical to offgas systems with HEPA filtration.		

Further safety review required? ☒ Yes ☐ No

AB change required? ☒ Yes ☐ No

If either answer above is 'Yes', continue with this form. If both answers are 'No', sign here and send Part 1 of this form to PDC.

Safety Evaluation Preparer:	Mickey Beary *Print/Type Name*	Mickey Beary *Signature*	8/04/03 *Date*
Design Document Originator/ Supervisor:	Jim Rouse *Print/Type Name*	Jim Rouse *Signature*	8/04/03 *Date*

Only required for screenings requiring NO ABCN or ABAR:

H&SA Lead: WP	Steve Woolfolk *Print/Type Name*	Steve Woolfolk *Signature*	7/15/03 *Date*

Safety Evaluation No.: 24590-WTP-SE-ENS-03-529	Rev. # 0
Design Document Evaluated: 24590-HLW-M5-V17T-00005	Rev. # 3

Part 2 Safety Evaluation (Complete Part 2 for all AB changes)

Complete Part 2 to determine the approval authority for the AB change. Obtain concurrence from H&SA Lead.

REGULATORY		YES	NO
1.	Based on the answers to the above technical questions and any other analysis, does the change create a new DBE?	☐	☒
	Basis: The relocation of the pressure and temperature sensors (2) from an SDS section of the PJV piping downstream of the fans to an SDC section of the piping upstream of the fans is a move to piping of the highest integrity. The system is not compromised by the instrument relocation such that a DBE analysis is required. The change in means by which humidity is monitored does not create a new DBE.		
2.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the Safety Analysis Report?	☐	☒
	Basis: There are no DBEs impacted by the change in location of the pressure and temperature sensors (2), hence no increase in frequency or consequence can result from this change. Likewise, there are no technical questions or any other analysis that can change this conclusion. This question is not applicable to Items (3), a hold, and (4) which is procedural in nature.		
3.	Based on the answers to the above technical questions and any other analysis, does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class SSC meets its respective safety function?	☐	☒
	Basis: (2) The safety function of the system is not impacted by the relocation of pressure and temperature sensors. The humidity monitor is replaced by temperature sensors. The parameters are changed but means of measuring the humidity is retained without compromising the safety function. This question is not relevant to a review of Items (3) and (4).		
4.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance to top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10 CFR 820, *Procedural Rules for DOE Nuclear Activities,* sets forth the procedural rules for the conduct of persons working to comply with DOE safety compliance. This safety evaluation of changes (2), (3), and (4) is prepared to approved procedure, 24590-WTP-GPP-SREG-002, Rev 5, which was established in accordance with DOE orders and requirements. A violation or enforcement, a purview of 10 CFR 820 is not an issue. The changes do not require an exemption from safety requirements. Supply of equipment is not an issue, hence reporting of supplier defective products or inaccurate or incomplete information is not germane. 10 CFR 830, *Nuclear Safety Management,* requires establishment and maintenance of safety bases and classifies QA work requirements applicable to standards and controls adopted to meet regulatory or contract requirement that may affect nuclear safety. There is no conflict with 10 CFR 830. 10 CFR 835, *Occupational Radiation Protection,* sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. Establishing radiation protection standards, limits, and programs are not applicable to this design change. These programs are in place.		

Safety Evaluation No.: 24590-WTP-SE-ENS-03-529	Rev. # 0
Design Document Evaluated: 24590-HLW-M5-V17T-00005	Rev. # 3

	The relocation of the pressure and temperature sensors (2), the hold on the material balance (3), and the change from a note to a reference (4) conforms to the top-level standards of DOE/RL-96-0006.		
5.	Does the change fail to provide adequate safety?	☐	☒
	Basis: The relocation of the pressure and temperature sensors (2) is not likely a change in safety although one can argue that locating these instruments downstream of the filters in the higher integrity piping is an improvement. Using temperature to monitor humidity is not a change that compromises safety. Historically, temperature has been used to maintain the humidity in offgas treatment systems below saturation. Safety is not an issue with items (3) and (4).		
6.	Does the change result in nonconformance to the contract requirements associated with the authorization basis document(s) affected by the change? See Contract Standard 7(e)(2).	☐	☒
	Basis: The DOE contract under Standard 7(e)(2) states radiological, nuclear, and process safety requirements shall be adapted to the specific hazards associated with the Contractor's WTP activities. The evaluation of changes (2), (3), and (4) comply with the Standard 7(e)(2) requirement. This safety evaluation of the relocation of the pressure and temperature sensor (2) is in compliance with this requirement. Items (3) and (4) are also in accordance with Management of Change requirements.		
7.	Does the change result in an inconsistency with other commitments and descriptions contained in portions of the authorization basis or an authorization agreement not being revised?	☐	☒
	Basis: The only AB document requiring revision is the HLW PSAR, in the change from monitoring of humidity to monitoring of temperature to determine humidity. This is a change in the baseline process description in the PSAR, and not other AB documents.		

If all Part 2 questions are answered 'No', a BNI-approved AB change (ABCN) is permitted. Complete Part 3 of this form and send it to the E&NS AB Coordinator. If any Part 2 question is answered 'Yes', a DOE-approved AB change (ABAR) is required. Complete Parts 3 AND 4 of this form and send to the E&NS AB coordinator.

BNI-approved AB change? ☒ Yes ☐ No

DOE-approved AB change? ☐ Yes ☒ No

Concurrence:	Initial	Date
H&SA Lead:		8/5/03

JK 8/8/03

Safety Evaluation No.: 24590-WTP-SE-ENS-03-529	**Rev. # 0**
Design Document Evaluated: 24590-HLW-M5-V17T-00005	**Rev. # 3**

Part 3 BNI-Approved AB Change

List affected AB documents, obtain necessary concurrences and approval, and send this form to the E&NS AB coordinator. If an SRD change is involved, obtain PMT and PSC reviews.

Affected Authorization Basis Documents:

Title	Document Number	Rev	Section
PSAR to Support Construction Authorization; HLW Facility	24590-WTP-PSAR-ESH-01-002-04	0	2.4.18.1

Concurrences: (check affected departments)

Review Required?	Organization	Print / Type Name	Signature	Date
☒	Safety Evaluation Preparer	Mickey Beary	Mickey Beary	8/06/03
☐	Safety Evaluation Preparer			
☐	AB Document Custodian			
☐	Quality Assurance			
☒	Engineering	Dilip Patel	D Patel	8/8/03
☐	Affected Area Project Manager			
☐	Operations			
☐	Construction			
Other Affected Organizations		**Print / Type Name**	**Signature**	**Date**
Mechanical Systems		Marla Wright	M Wright	8/7/03

BNI-Approved AB Change Approved:

E&NS Manager: Fred Beranek (*Print/Type Name*) _____ (*Signature*) 8/8/03 (*Date*)